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GREAT BRITAIN AND IRELAND.

APRIL 9TH, 1895.

E. W. BRABROOK, Esq., F.S.A., *President, in the Chair.*

The Minutes of the last Meeting were read and signed.

The presents that had been received were announced and thanks voted to the respective donors.

Dr. G. W. LEITNER exhibited some maps of Chitral and surroundings, and made remarks on the tribes of the district.

The following papers were read:—

“Four, as a Sacred Number.” By Miss A. W. BUCKLAND.

“The Miser’s Doom”: A Modern Greek Morality. By JOHN L. MYRES, Esq.

“Ceremonies observed by the Kandyans in Paddy Cultivation.” By T. B. POHATH KEHELPANNALA, Esq.

“Lex Barbarorum of the Daghestan.” By Prof. MAXIME KOVALEVSKY.

VOL. XXV.

FOUR, *as a SACRED NUMBER.*

By A. W. BUCKLAND.

WHEN collecting materials for my paper upon "Points of Contact between Old World Myths and Customs, and the Navajo Myth, entitled 'The Mountain Chant,'" I found myself constantly confronted with the fact, that, amongst almost all the Red Indian tribes, the number *four* and its multiples had a sacred significance, having special reference to the cardinal points and to the winds which blow from them; the sign and symbol of this quadruple nature-worship being the Greek, or equal-armed cross.

This conclusion had been arrived at long ago by Brinton and various students of Mexican and Mayan sculptures and hieroglyphics, for it is well known that the cross, in various forms, is a prominent object in Mexican and Central American pre-historic picture writings and sculpturings, and it appears to me that the continued use of the same symbol, with apparently the same meaning, among the various Red Indian tribes of to-day, is a matter of considerable anthropological interest, especially when it is remembered that as far as can be seen, there remains among these tribes no trace of the exceptionally bloody rites of ancient Mexico.

Mr. Holden, of the Smithsonian Institute, in treating of the Maya hieroglyphs, identifies the gods of the Mayas with the four great gods of Mexico, and shows the prominence of the number four in all. Huitzilopochtli is represented with four hands; to his temple "there were foure gates," in allusion to the form of the cross. Solis says, the war-god sat on a throne supported by a blue globe. From this, supposed to represent the heavens, projected four staves with serpent's heads." The cross was also one of the symbols of Quetzalcoatl, and one of his titles is "The lord of the four winds," of which this was the sign. The cross is a prominent object in the Palenque tablet, and there can be little doubt, that, wherever found, it represents the winds, or the cardinal points, of which the bearer is supposed to be the god or guardian; but whether the Greek cross and the St. Andrew's cross have the same significance is doubtful; both are introduced freely in the hieroglyphs, and the Tau cross is also found, but not so frequently. The Mexican paintings are however, more to our present purpose, for, in these, not only do we get the cross as a nature-symbol, but we find it associated with especial colours, such as, among the Indians of to-day, are typical of the cardinal points; and also with certain signs and

symbols, which can still be traced in the ceremonies observed by various tribes at their medicine dances.

Mr. Thomas, in the third Annual Report of the Bureau of Ethnology (Smithsonian Institute) reproduces some of the Mexican codices. Of one of these the "Tableau des Bacab," he says, "Rosny supposed it to be a representation of the gods of the four cardinal points," an opinion I believe to be well founded. The centre of this tableau is a cross or sacred tree. In another plate, copied from the Borgian Codex, four gods, evidently representing some astronomical facts, (Mr. Thomas thinks they denote the solar cycle of 52 years, thirteen in each), occupy squares surrounded by fanciful serpents, the head of each being turned towards a conventional sun in the centre, and one of these gods is represented lying upon a St. Andrew's cross, which was evidently his peculiar symbol.

In a reproduction in colours of a plate of the Fejervary Codex, the picture is in the form of a Maltese cross. In the centre stands a god apparently wielding a thunderbolt, whilst at his back appears four forked branches of a tree, forming a St. Andrew's cross. In each of the four compartments or arms of the Maltese cross, a tree is represented with two branches making a cross, with three blossoms at the end of each branch. In the centre of three of these sits a bird, whilst the fourth is occupied by a dog. These three birds and the dog reappear in the Ojibwa ceremony of the Midewiwin, where they are seen mounted on crosses or painted poles at the entrance to the lodges.

The colours of the Mexican MSS. are deserving of study, because there is every reason to believe that they also are typical of the cardinal points, although it seems almost impossible to know to which point any particular colour should be assigned. The colours are blue, green, red, and yellow, and as blue seems in many cases to be used for south, we may perhaps look upon it as representative of the south in this case also. The variations in the typical colours assigned to the cardinal points among the different Red Indian tribes dwelling in close proximity to each other are very puzzling to the student. For example, although the Navajos and Zunis both use white to denote the east, the colour employed by the Navajos for the west is yellow, but the Zunis use blue, whilst blue among the Navajos signifies south.

I have sometimes thought that it might perhaps be possible to trace the wanderings of these tribes through these varying colours, for it is conceivable that a tribe coming from the south, who had been accustomed to associate some natural object, say a mountain with the north, and to assign to it a certain colour,

would on settling to the north of that mountain, still associate the same colour with it, although it would no longer represent the north, but the south.

The same idea has appeared to me applicable to the mystical Swastika, which, alike in the old world and the new, would seem to typify the path of the sun in the heavens, and which is yet frequently found depicted with the arms turned in a contrary direction to the sun's course. Some writers see in this a male and female sun, but it seems to me much more reasonable to suppose that those using the reversed symbol came originally from a southern land, where, of course, the sun's path would be reversed, being east by north to west, instead of as with us, east by south to west. The reversed Swastika is found represented in Peru as well as in the sun-baskets carried by the gods in the great sand-paintings of the Navajos; and the same reversed position from right to left is observable in the birds' heads on the engraved shells found in American mounds, which birds' heads, surmounting looped squares, are usually regarded as denoting the cardinal points.¹ Dr. Colley March, however, who has studied this subject, supposes the two positions of the Swastika to denote, first the sun's path, and second the revolution of the stars in an opposite direction round the pole. The subject, however, is difficult, and I merely offer my own idea as a suggestion.

It would be impossible to refer to the innumerable instances among the American Indians in which four is employed to designate sacred objects, always in reference to the cardinal points, but the subject comes out strongly in the great Navajo epic, which was the subject of my former paper. The gods are all four in number and all range themselves one at each cardinal point, being painted in the colour appropriate to that point. There are four bear-gods, four porcupines, four squirrels, four long-bodied goddesses, four holy young men, four lightning birds, &c. The hero is allowed four days and four nights to tell his story, and four days are employed in his purification. The great corral made for the performance of the ceremonies is left open on the east side only, and all entering have to move round it to the south, following the course of the sun, and in all the ceremonies especial reverence appears to be shown to the east.

The great sacred sand-pictures² which are so remarkable a feature in these ceremonies, are all commenced on the eastern side, and that part is also erased first, whilst the patient is always seated facing the east.

¹ The square symbolizes the concentration of the four winds among the Navajos.

² I have seen somewhere that sand-paintings are also used in China.

These sand-pictures made and erased on four successive days are all constructed of four reduplications and multiples ; thus, the first consists of four pairs of snakes crossed to make four St. Andrew crosses, and are surrounded by four longer snakes, one at each of the four cardinal points, and always in the colour assigned to that point. The four goddesses, or *long-bodies* of the third picture, although they stand side by side are each represented in the appropriate colours of the cardinal points to which they are related. These long-bodied goddesses appear to refer to a Mexican legend related by Sahagun, who says "the fourth figure was the *house*, and was dedicated to the west, which they called Cioatlampa, which is nearly towards the house of the women, for they hold the opinion that the dead women who are goddesses, live in the west, and that the dead men who are in the house of the sun, guide him from the east with rejoicings every day until they arrive at midday, and that the defunct women, whom they regard as goddesses, come out from the west to receive him at midday and carry him with rejoicings to the west.¹

The great corral of the Navajos seems also to be connected with a legend of the Zunis, which treats of a gigantic magic corral, wherein all the game animals were kept by the snail people, until discovered by Sha-la-ko, who informed his father Pa-u-ti-wa, the chief god of the Ka-ka, probably the sun. This god calls a council, and by his sacred power opens the magic corral first on the north side, when the great deer rushed forth to be seized by the mountain lion, the regent of the north; then the west side is opened and the mountain sheep escapes to be hunted by the coyote, regent of the west; next an opening is made on the south side, whence springs forth the antelope, to be seized and devoured by the wild cat; and lastly the east side is opened, and forth came the albino antelope, to fall a prey to the wolf. Then it is added that whilst these prey animals were satisfying their hunger the game began to escape through the breaks in the corral. Through the northern door rushed the buffalo, the great elk, and the deer, to be chased by the mountain lion, and the yellow sa-la-mo-pi-a to the world, where stands the yellow mountain, below the great Northern Ocean. Out through the western gap rushed the mountain sheep herded and driven by the coyote and the blue sa-lo-mo-pi-a towards the great Western Ocean, where stands the ancient blue mountain.

Out through the southern gap rushed the antelope, herded and driven by the wild cat and the red sa-lo-mo-pi-a toward the great land of summer, where stands the ancient red mountain.

¹ "Maya and Mexican MSS." Cyrus Thomas, "Smithsonian Annual Report," 81-82.



Out through the eastern gap rushed the Ok-o-li, herded and driven by the wolf, and the white sa-lo-mo-pi-a, toward where "they say" is the Eastern Ocean, the "Ocean of Day," wherein stands the ancient white mountain.

Here will again be noticed the four cardinal points with their special colours, differing, however, from those of the Navajos; the Zunis also add two regions, one for the "Sky Ocean," presided over by the eagle, and pourtrayed as of many colours, and one for the under world, to which the mole and the black sa-lo-mo-pi-a follow the rabbits, the rats, and the mice, towards the four caverns (wombs of earth), beneath which stands the ancient black mountain; but the ceremonies take place in a square enclosure, and the number four and the cardinal points are in constant evidence.¹

The sa-lo-mo-pi-a so often mentioned are legendary monsters with round heads, long snouts, huge feathered necks, and human bodies. They are supposed to live beneath the waters,² and are represented by masked figures at the ceremonies.

The four mountains, with the two supplementary ones of this legend, doubtless denote the four earth pillars of eastern tradition, the "four corners of the world," represented in the Navajo legend by the four trees cut down to form the supports of the medicine lodge; in the *Perehara* ceremonies of Ceylon, as described by Miss Gordon Cumming, by the young tree cut into four, and erected as pillars in four temples, round which the bows and arrows of the gods are carried on four elephants.

Among the Ojibwa there is an initiation ceremony of four degrees, which takes place in an oblong enclosure with openings to the four cardinal points; within this is placed a sacred stone, and to the west of this, four posts, painted in emblematic colours, one of which is a cross, painted white with red spots; but the lower half of the trunk is squared to face the cardinal points, and coloured white on the east, green on the south, red on the west, and black on the north. There are four of these enclosures, in each of which a different degree of initiation takes place, and it is upon poles raised in front of these several lodges that the effigies of birds and of a dog are placed, which, according to the delineations given, exactly reproduce those of the Mexican MSS.

There are undoubtedly traces in the eastern hemisphere of reverence for the number four in connection with the cardinal points, some of which may be compared with the American ceremonies. Miss Gordon Cumming says that the dagobas, forming the commonest kind of grave in North China, from

¹ Zuni Fetishes, Cushing, "Smithsonian Report," 1880-81.

² Cushing.

Pekin to Shanghai, are all built on a square platform. In the great dagobas the centre is denoted by a square pillar rising about 4 feet, on which rests the casket of relics. The central pillar or monolith is placed exactly to face the four cardinal points and the square of the platform is also marked to face the points of the compass.¹

In my former paper I pointed out a remarkable ceremony which takes place at the Perehara in Ceylon, when, at the full moon, four priests, bearing four swords of the goddesses, attended by four assistants, row up the river, and at the first streak of dawn the four priests strike the water with their swords, describing a magic circle in honour of the sun, whilst the four attendants fill their water vessels within the magic circle thus described. In many other points this Perehara ceremony seems to touch upon American and ancient Mexican religious ceremonies, to one or two only of which I will now refer, such as the use of masks and high stilts by the performers, and of painted sticks to symbolize the divinity.

In the descriptions given of Mount Meru we find not only the four square figure carefully turned to the points of the compass, but also the colours, such as accompany the American cardinal points, for the south side is represented as of the colour of the lotus, the eastern as that of the ruby, the northern as that of coral, and the western as that of gold.

Gerald Massey, in that curious book called "The Natural Genesis," says, "on a gem copied by Maffei the tree of life is engraved with four oscilla suspended from its branches." This is the Roman and British Christmas-tree, only the pendants are limited to four, according to the Gnosis that has been lost in England, which made it the tree of the four cardinal points.

There can be little doubt that seven, which we regard as the perfect number, has been formed by the engrafting of a tripartite divinity upon the older religion, which saw in the four cardinal points the mythical supports of the heavens. "Four spirits stand, four powers preside, four winds blow, four waters flow at the four corners of the mount in the general myth of the world."²

The careful orientation of the Egyptian pyramids, and the four canopic jars wherein the viscera of the mummy was consigned to the guardianship of the regents of the four quarters of the heavens, show how far back in the old world this reverence for the points of the compass extended. We find many allusions to the same in the Bible, and the pyramids of Babylon were not only carefully oriented, but also painted in colours. Pythagoras

¹ "Two Happy Years in Ceylon," p. 388.

² "The Natural Genesis," Gerald Massey.

and Hermes both looked upon four as the perfect number, bringing, we may suppose, that idea from the east, and it is in India, China, and Japan, that we find the cardinal points still reverenced.

In Japan we are told that a child is placed on the floor, and towards whichever of the cardinal points he creeps so will his future be determined; a priest meanwhile holds over him a paper wand (*Gohei*), praying to the “Kami,” or ancestors, that the right choice may be made.¹

When we compare old world customs and beliefs such as these with those of the American tribes, we cannot help seeing in them a link binding the east to the west, and helping to prove a common origin, if not of race, at least of myths and superstitions.

“*The MISER'S DOOM*:” A MODERN GREEK MORALITY. By J. L. MYRES, M.A., F.S.A., British School of Archæology, Athens.

[WITH PLATES VI, VII, VIII, IX.]

THE following is a brief sketch of an open-air performance which might be seen in 1893 in the streets of Athens, on any of the principal days of the Greek Carnival. Though, as is explained below, the text of the dialogue was not accessible, and very likely does not exist in writing at all, the account of the action may be taken as accurate and fairly full. The pictures which accompany it are reproduced from “snap-shot” photographs taken in the *Σύνταγμα*, or Place de la Constitution, in front of the palace and the principal hotels; which are the more adequate because the performers, so far from shrinking, as so many natives do from being photographed, even stopped the performance at the critical moment, and insisted on grouping themselves in a more convenient way. In the first three pictures, however, the actors are quite unconscious of what is going on.

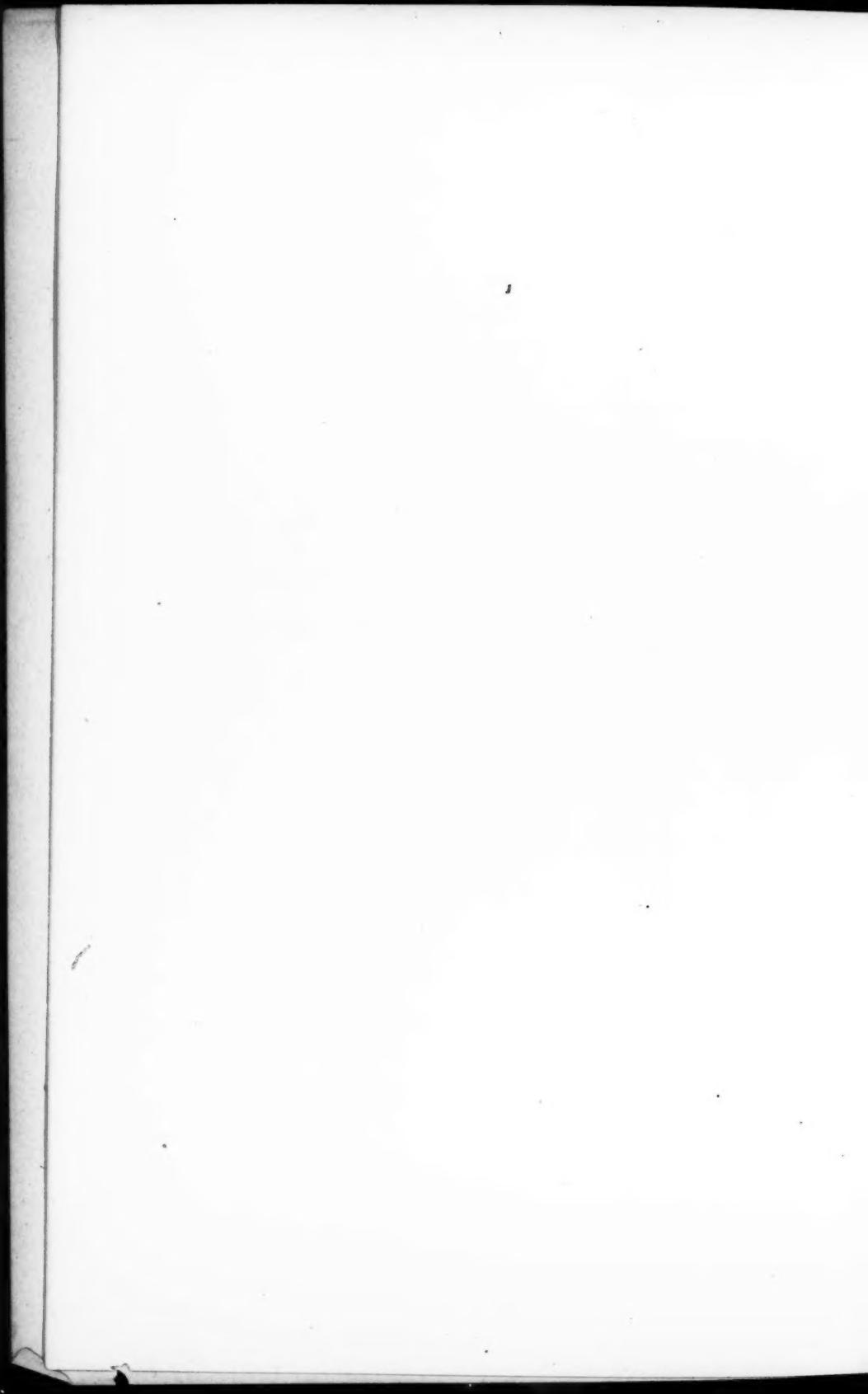
There is only too much evidence that many of the leading features of the modern Greek Carnival have been borrowed from the Italian custom, and that at a recent date; and there is consequently the chance still open that this particular performance may prove to be derived from a western original. But even if so, it has become so thoroughly adapted, in its literary and dramatic form, to its present circumstances, that it seems worth while to describe it on its own merits as a modern Greek, if not a Romaic ceremony.

¹ “Symbolic Ceremonies of the Japanese.”



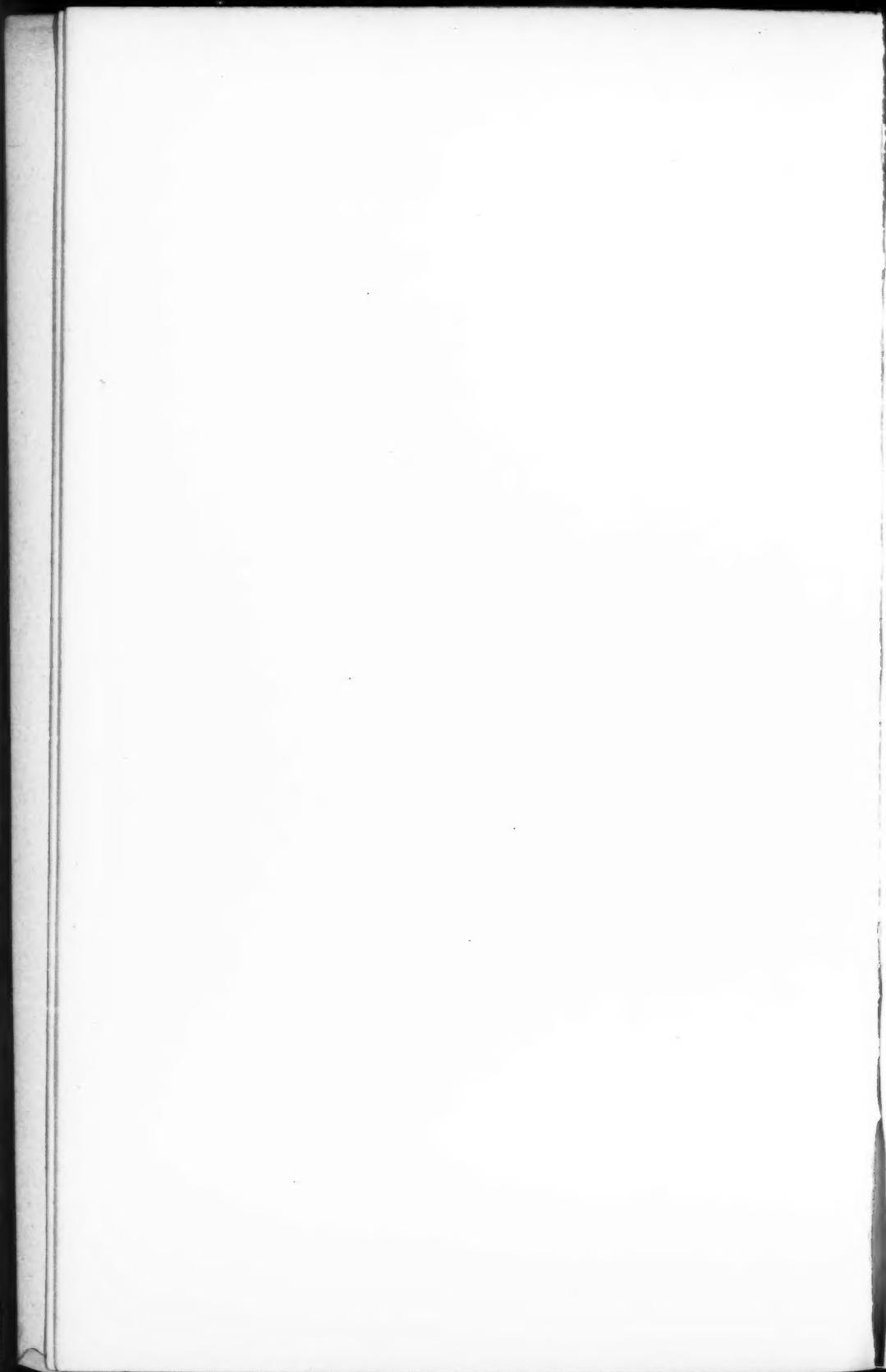


1. THE ANGELS WAITING FOR THEIR CUE.



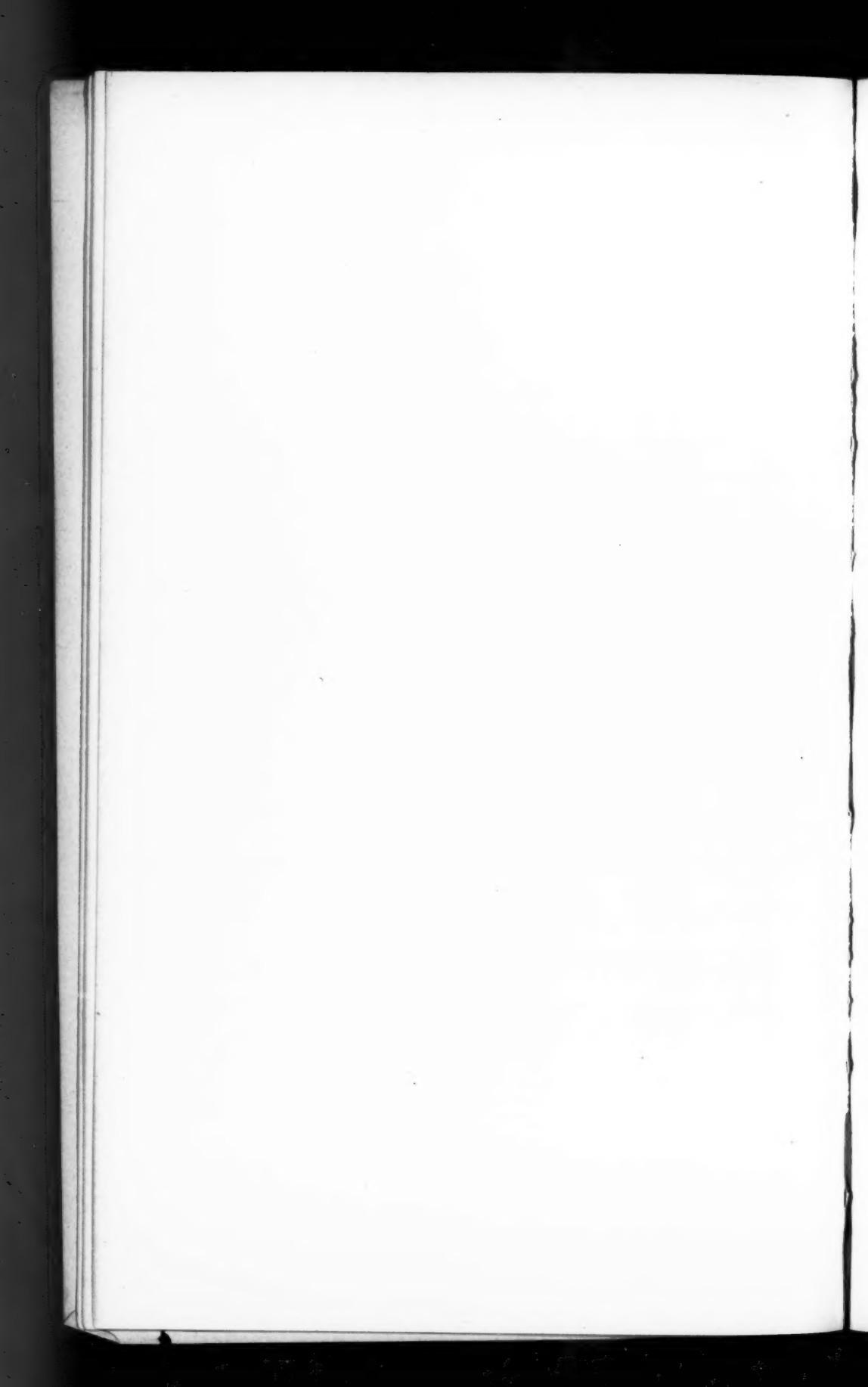


2. "COME TO JUDGMENT."



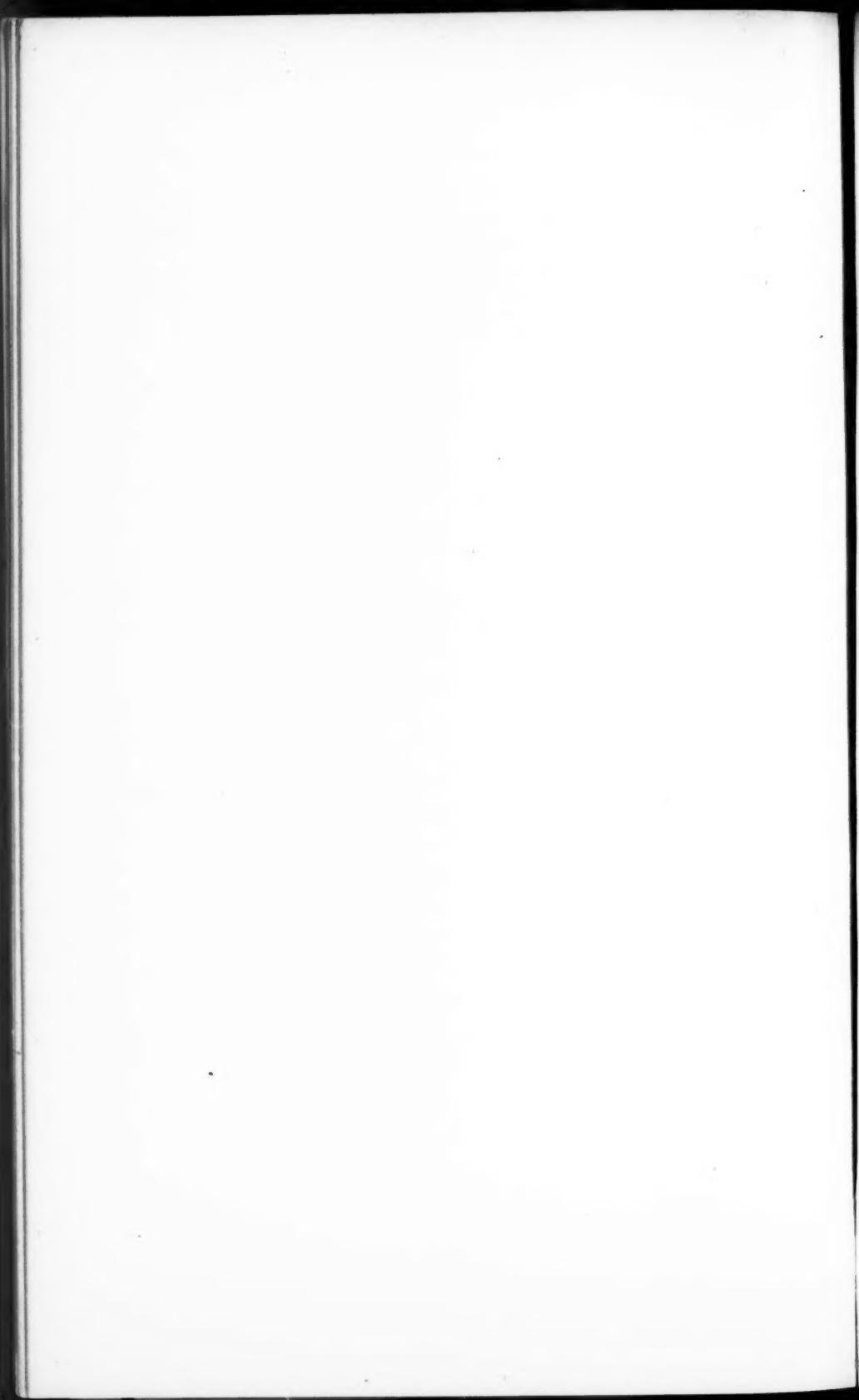


3. THE SOUL IS EXTRACTED.





4. "WEIGHED AND FOUND WANTING."



The play is presented by six performers, of whom, however, two have nothing to say. Two represent angels; two, devils; and two, the miser and the chorus, are in ordinary costume. A seventh, in grotesque costume, helps the devils to keep the ground, and takes round a large tin money-box. All wear masks, and those of the devils are of calico and continuous with the rest of their dress. The "properties" are of the simplest: a common table, a chair, a large ledger, and a *κρεββάτι*, or thin native mattress with a pillow spread in front of the table. The miser is discovered seated at his table, poring over his book. He wears an old brown overcoat, a battered top-hat, and a livid and unpleasing mask. Round his waist is tied a broad belt of brown paper, with his name, *Φιλάργυρος*,¹ thereon in large black letters. To him enters a personage in a red jersey and cap, who remains on the scene throughout, and acts the part, now of a preacher, now of a chorus or explanatory commentator. In a dignified address he reproves the miser for his manner of life. The miser rises, protests against him, and then returns to his book. The preacher persists more vehemently, and, after a while, the miser gets up again, abuses him, threatens him with a stick, and sits down again to write. But now, too late, his conscience is aroused; his business contents him no more, and he paces up and down, while the preacher, in a loud voice, summons him to judgment, and retires. The miser takes one or two more turns, then falls upon his bed, and seems about to die. The preacher stands over him, and proclaims his fate to all. Meanwhile, the devils, who, in complete suits of black, with features outlined in red, huge eyes, and short horns of the black calico stuffed with wool, have been keeping back the spectators and scaring adventurous urchins with their long pitchforks, clear an avenue at the end farthest from the table, and take post behind the two angels, who have been awaiting their cue some 30 yards away beyond the crowd. (Pl. VI.) The archangel wears tights and short garments of pink and blue gauze, with tinsel wings behind his shoulders, and a very peculiar headdress above his cherubic mask. The other is less gorgeously attired, and wears a cylindrical hat with a plain veil of pink paper over his face. At a signal from the chorus, all four advance rapidly with a peculiar tripping gait towards the bed. The miser raises himself upon his elbow, and seems to plead for himself before the angels; but the archangel carries a sword, and, standing over him, makes believe to strike off his head (Pl. VII), while his companion draws out from his neck a small nude china doll, which represents the soul of the dead man, whereat the devils

¹ For *Φιλάργυρος*: itacism runs wild in popular Romaic spelling.

dance round with discordant cries, and try to seize and torment it. (Pl. VIII.) The angels drive them back, but at last consent to abide by the test of weighing. It is beyond the purpose of the present note to do more than recall the interest attaching to such a representation of a very early primitive religious idea. A pair of scales is brought, and the guilty soul is placed in one of them, its good actions being assumed to occupy the other. (Pl. IX.) A short pause, while the devils make feints with their weapons; then the soul's scale slowly sinks ; its condemnation is pronounced, and it is given over to the tormentors, who struggle over it, gnaw it with their teeth, and make believe to impale it on their tridents, snarling and squealing with fiendish joy the while. The chorus pronounces a short epilogue, and points a seasonable moral—"If you would escape the miser's doom, *put your pennies in the box.*" The play is over ; the miser rises in the sight of all, takes up his bed, and walks off with the rest of the troupe to the next convenient spot.

The performance is evidently got up with some care, and the actors, especially the archangel, are not without dramatic power of a kind. The dialogue is in rhyming iambic catalectic tetrameters (8,6,8,6 of our hymn-books), which is the regular Greek ballad metre; but as the words themselves are preserved with some jealousy, it is not easy to get a copy of them. Another version is said to be current in which the soul is at last redeemed from torment ; and this statement is supported by the fact that in most other representations of the judgment of the balance, the good and not the evil is put with the soul into the scale which sinks ; but this year (1893), at all events, the only rendering given in Athens was that described above.

CEREMONIES *observed by the KANDYANS¹* in PADDY CULTIVATION.

By T. B. POHATH KEHELPANNALA.

IT may not be uninteresting to the members of your honourable Society to know something about the ceremonies observed by the Kandyan paddy cultivators, and I trust that the information which I have collected and embodied in this paper will not be considered altogether unprofitable reading.

After having selected a suitable plot of land for cultivation, the goiya (cultivator) presents himself before the Neket-rala (village

¹ The Sinhalese of Ceylon are divided into two classes : those occupying the mountainous districts are called Kandyans, while those bordering the maritime districts—low country Sinhalese, whose habits and traditions differ much from their brethren—the uplanders. The Kandyan country was ceded to the British only in 1815.

astrologer) on a Monday or Wednesday with the customary offering of forty betel leaves and areca-nuts, and expresses his wishes in a humble attitude. The Neket-râla then informs his petitioner, after certain astrological calculations, the circumstances upon which the success or failure of his undertaking depends. On an auspicious day (according to the Neket-râla), the goiya, after partaking of *heel-bat* (the morning meal) wends his way to his land with a mamoty (a kind of hoe), his face turned towards the favourable direction of the horizon as indicated by the astrologer. Should the goiya on this journey encounter sights or sounds which portend failure—*e.g.*, the hooting of an owl, the cry of a house lizard, the growling of a dog, the sight of persons carrying weapons capable of inflicting injury, &c.—he immediately turns back and retraces his steps homewards. Again the Neket-râla has to be approached in the manner before described, and consulted as to a lucky hour. Were the goiya to meet with a milk cow, vessels filled with water, men dressed in white, &c., when he sets out towards his land, it is considered very propitious.

Assuming he has arrived at his land without the occurrence of any untoward event, the goiya begins to turn up the soil with his mamoty, this process being called *Gevadenawa*. On the following day the goiya entertains such of his fellow-villagers with *keun* (rice cakes), *kiri-bat* (milk-rice), &c., as are willing to co-operate with him in the cultivation of his field. At the lucky hour, these villagers armed with mamoties proceed to the land, headed by the owner, and turning their faces in the direction of Adam's Peak give out the cry of “*Hâ purd hodai*.” (Ha! a good beginning.) At sun-turn (midday) the workmen retire for their midday meal. During the time the villagers help the goiya in the cultivation of his field, they are supplied by him with food and other necessaries.

No particular ceremony is observed in ploughing, except that wreaths of sweet smelling flowers are twined round the horns of the buffaloes, and the ploughmen keep intoning the words “*uwé uwéowé uwé uwéowé*,” which are considered pleasant and encouraging to the animals.

When the field is ready for sowing, the ceremony of *Pela mala Hadanawa* takes place after the following manner:—On the advent of a lucky hour, the goiya leaves his dwelling after having recited a number of religious stanzas, bearing an areca-nut flower and a pata (handful with the fingers stretched out) of paddy. Having arrived at his field, with his eyes turned towards the favourable region of the sky, he buries the paddy in a corner of a ridge, having first moulded the earth at the spot so as to represent a peculiarly shaped symbolic figure,

and lays the areca-nut flower on the top of the mound. On inquiring into the significance of this ceremony, Kehelpanala Pohath Nàyaka Unnànsê, High Priest of Kotmalè Pansala, informed me that the areca-nut flowers were intended as an offering to the gods, who are held to have a great love for them, while the paddy is believed to be taken away to provide for a meal. After a lapse of five days all preparations are made to sow the field.

The time of ploughing is one of great solemnity to the Kandyan paddy cultivator. The *Neketràla* is again consulted for the purpose of finding a nekata (lucky hour).

Exactly at the time appointed the goiya puts into a large earthen vessel of water the paddy that is to be sown. Having allowed the paddy to soak for a time, it is heaped on the cow-dunged floor in a pyramidal or conical shape. Dangomuva Bandar, Ratèmahatmaya¹ of the Badulla district, informed me that a peculiar preliminary ceremony was observed by the cultivators of that part in connection with the sowing of paddy. Images of Buddha in recumbent, sitting, and erect postures are brought with every mark of solemnity to the place where the paddy to be sown is stored, and certain religious performances are gone through by the officiating Kapuràla. Four days after the soaking referred to above, the ceremony of *yàn karanawà* takes place, that is, the separating of the germinated seeds from the general mass. A part of the *pila* (verandah) or other convenient place is then rubbed over seven times with a thick solution of cow-dung, and the paddy is placed on this prepared floor and covered over with leaves of the *Habarala*, *Enduru* or *Maru*. The field is then got ready for sowing and the goiya proceeds to the astrologer to consult him as to a lucky hour and day for sowing. Very early in the morning on this day the cultivator anoints himself with sandal wood or other oil, and repairs to his field with the seed to be sown, the paddy being placed on plantain leaves and a mixture of cow-dung and water poured over it. The goiya, as he sows the paddy, repeats to himself certain religious stanzas and meditates on the *Hatarawaran Deviyo*, the gods of the four regions of the globe. Every precaution is taken to prevent trespass of all kinds on the field, and the goiya fences in his land with stones or sticks. Much of the time of the cultivator is now necessary for watching his field. When the paddy is about a month old, weeding, *Wal Ederema*, is done. This part of the work is exclusively done by women, who are required to be thoroughly clean.

¹ A chief of a Kandyan district.

Thinning and planting, or *Neluma*, is done by the women when the paddy is about three months old. On a day which is not considered unlucky the women call upon the owner of the field for the *attankaiya* (this means return service), and the owner, according to recognized custom, treats the women to *keun* and *kiribat*, and directs them to commence work. The women, while transplanting, intone verses of poetry, making pleasant music. No one dare cross the ridges with an open umbrella while the women are at work, unless there be urgent need for so doing, and permission be first obtained, otherwise mud, &c., are thrown on the intruder whoever he be. The President (a judge of a village tribunal) of Uda Bulatgama mentioned to me that it is recorded of a certain king of Kandy, that while crossing the field known as Gurudeniya in Kundesalé Kandy, where some women were engaged in transplanting, he was bespattered with mud by them. The women proved themselves no respecters of person in the carrying out of their duty, while the king himself passed on without a word of censure against the treatment which no doubt he thought he deserved.

Paddy is liable to be attacked by a grub known among the Kandyans as *Kok-panuwoo*, which sucks the juices of the plant. To avert such attack a *Kema* or charm called *pas-pulutu-kema* is arranged for by the Kapuràla. Five kinds of grain seeds are fried in a pan and afterwards spread on some mud which is moulded over a cocoa-nut shell. About dusk, *gomman vena rélawa*, the Kapuràla after going through a process of purification, proceeds to the infested field with this preparation, carrying a lighted torch in his hand. The *Kema* is placed on a piece of wood, and the lighted torch is allowed to burn till the fire is extinguished. After this the Kapuràla returns home, but not by the same road he went to the field, and to nobody must he utter a word on the way.

Another method of dealing with this pest is to submerge the crop with water for a time. In some parts of the Kurunegala district an oleaginous mixture with a pleasant scent is smeared over areca-nut flowers by the Kapuràla, after reciting the *Ithipiso Gàtha*, and suspended on sticks in different parts of the field. In the Anuradhapura district, sand, after being "charmed," is scattered over the field, and offerings are made to *Jyan* and *Abimàna Dewiyos* with a view to inducing their intercession to stay the ravages of the pests. Mr. Bell, of the Ceylon Civil Service, in writing about the cultivation of hill paddy, describes another *Kema* called *nava nilla*, practised by the cultivators of the Sabaragamuwa district.

When the paddy is approaching maturity, other ceremonies are gone through, the goiya, after purification, places three ears

of grain on a leaf of the Bo-tree,¹ which is held in great veneration, for reasons too well known to need mention, and buries them in the *kalavita* or threshing floor, at the same time chanting some mystic words, invoking the gods to protect the crop from flood, fire, birds, and wild beasts. A day or so prior to the harvesting a few women are set to smear the threshing floor with cow dung. The crop must not be taken in on days on which *poya* (the sabbath of the Buddhists), *Sangrahandi* (when the changes in the moon occur), and *Vitti* (inauspicious days) fall. Again the Neketràla, attired in fantastic dress, describes a peculiarly-shaped figure with ashes on the *kalavita* with a view to preventing *huniyam* (sorcery) and other evil influences. This ceremony is known as *aluwanwadanawa*. Another rite of a peculiar nature follows this, known as *arkawalétiyanawa*. It consists of digging a circular hole in the field and placing inside a model of the sacred footprint of Buddha (Sripare), a husked cocoa-nut, a creeping plant, clusters of areca-nuts, leaves from the *héeraspalu* (*Vitis quadrangularis*), and *Tolabò* (*Crinum asiaticum*), and covering these with about three bundles of straw. The figures of the *pòru lella* (leveller), *laha* (measure), sun and moon, are also described with ashes in the *kalavita*. The village astrologer is also resorted to in order to ascertain a lucky day to reap the field. On such a day a number of men with their eyes directed towards Adam's Peak, and assuming a joyful mood, proceed to the field with their sickles, and verses are sung in turn by the reapers. Another ceremony which precedes threshing consists in three nursing mothers clad in white, having to go round the field seven times carrying paddy on their heads, and then suddenly coming to a standstill and retreating, without uttering a word, to the three corners of the *kalavita*. Then after giving utterance to some incantation, they drop their burdens on the ground, and this is the sign for threshing to begin.

One word more. Threshing is of course conducted by buffaloes yoked together. During this ceremony women are not permitted to intrude on the *kalavita* or threshing floor on any pretence whatever, as the Kandyan goiyas harbour an ill-defined notion of their impurity. But in Beligal Koale, in Kegalle District, and also in Seven Korles (Kurunegale District), women are not altogether subjected to this prohibition. When the ears of paddy are well trodden down by buffaloes so as to separate the paddy, it is winnowed in order to remove the dust and other

¹ This tree is held in the highest veneration by the Buddhists, in consequence of the fable that the day on which Buddha attained his sacred character, he went and seated himself in a certain place, when this tree instantly sprung up for the purpose of sheltering him. The tree at Aunuradhapare is the oldest historical tree in the world. Its botanical term is *Ficus Religiosa*.

refuse which are very often found along with paddy. If the threshing is likely to continue for more than a day, a rude watch hut called a *pela* is constructed by the goiya, and a watcher is set as guard to prevent theft and ravages of wild beasts.

After winnowing, the paddy has to be measured. This process is termed *yal karanaawa*. It is noteworthy that because the Kandyan cultivator often happens to be illiterate, he resorts to a seemingly queer method of measuring the crop his field had produced. For this purpose a ripe areca-nut is taken, and when 40 *lahas* (1 amunam) are counted, a line is drawn on the areca-nut, and so on, as many lines as there are amunams. A *nilakàraya*, or tenant, when he goes to his landlord to tell him the quantity of paddy his field yielded, takes great precaution not to express the number in words, but to offer the areca-nut, which would clearly indicate the number.

The following is a list of the measures of paddy current among the Kandyans:—

4 Mitas	= 1 Atalossa (a handful with the fingers slightly bent inwards).
8 Mitas	= 1 Pata (a handful with the fingers stretched out).
2 Patas	= 1 Manawa (two handfuls).
2 Manawas	= 1 Neli (sheer).
4 Neli	= 1 Kuruni.
4 Lahas	= 1 Timba.
5 Kuruni	= 1 Bera.
10 Lahas ¹	= 1 Pela (one bushel).
2 Beras	= 1 Pela.
4 Pelas	= 1 Amunu (6 bushels or $5\frac{3}{4}$ more correctly ; or 2 or $2\frac{1}{2}$ acres in English standard measurement).
6 Pelas	= 1 Yel-amunu.
20 Amunams	= 1 Yala (180 bushels).

The removal of paddy from and to the house is exclusively performed by women, who are required to go through a process of purification.

There are many receptacles of paddy, among which I shall mention the principal ones. Paddy is generally stored in an *atuwa*, or a barn or granary, which is the largest possible receptacle. It is made of wooden planks in the shape of a square, and set usually on stone pillars. The best site for the construction of an *atuwa* is in front of or in the middle of a house. The *atuwa* has an opening at the top which is reached by means of

¹ These differ according to size, some 7, others 8, while a few 9 *lahas* for a *pela*.

a ladder. A *Bihi* is next in size and importance. This is a huge vessel conical in form, and constructed of sticks or split calamus (rattan). The largest sized one is capable of holding about a hundred amunams or 400 bushels.

A *pes* follows this. It is a large cylindrical vessel made of bamboo or rattan, and will contain about 10 amunams.

The other minor receptacle of paddy are of little importance and too well known to need mention. Certain incantations are uttered by the goiya in the act of storing paddy as a preventative against the attacks of moths and other injurious insects.

The goiya and the parties interested use peculiar technical terms during threshing, to name different agricultural implements, &c. These terms, though used from time immemorial, are never mentioned in ordinary language, and are not in keeping with native idioms and dialects. This mode of communication is called *Gori-bàsàwa*, or the goiya's language. I was told by a well-informed Kandyan chief that the object of the goiya in adopting this course is in order to prevent the *Yakkhos* (devils) from stealing the paddy and consequent misfortunes.

The following are a few of the technical terms referred to, and I believe they will be of interest to the readers:—

- | | | |
|------------------------------|----|----------------------------|
| 1. <i>Gongahanana</i> | .. | for driving the buffaloes. |
| 2. <i>Yatura</i> | .. | " winnow. |
| 3. <i>Goi Lella</i> | .. | " leveller. |
| 4. <i>Lakawaliya</i> | .. | " sweeper. ; |
| 5. <i>Bolgediyo</i> | .. | " buffaloes. |
| 6. <i>Pubboruwoo</i> | .. | " rice. |
| 7. <i>Rattà</i> | .. | " fire. |
| 8. <i>Kotabànawà</i> | .. | " eating. |
| 9. <i>Rattà Mahatkarapan</i> | .. | " to kindle a fire, &c. |
| 10. <i>Pellai</i> | .. | " bags. |
| 11. <i>Kola Madinawa</i> | .. | " threshing. |
| 12. <i>Beta</i> | .. | " paddy. |
| 13. <i>Meduwan</i> | .. | " straw. |
| 14. <i>Detta</i> | .. | " flail. |
| 15. <i>Kalavita</i> | .. | " threshing floor. |
| 16. <i>Gagulà bânawa</i> | .. | " rain. |
| 17. <i>Gon pas</i> | .. | " dung of the buffaloes. |
| 18. <i>Galutanawà</i> | .. | " yoking. |
| 19. <i>Katumannatta</i> | .. | " chaff. |
| 20. | | |

Before taking paddy for household consumption, a portion is first reserved called *Akkiyàla* as *Dehiyangè Panguva* or god's share. This is given in the name of the god to the *Kapuràla*,¹

¹ Devil priest.

who is supposed to have officiated throughout. Another portion called *Alut Bat Dane*, is sent cooked to the neighbouring *Pansala* (Buddhist monastery) for the priests.

A quantity of paddy is then put into the mortar and three women clad in white with three pestles in their hands pound the paddy at an auspicious hour. A grand feast is next given to relations, at which all the guests including the goiya and his family make merry, afterwards dispersing with every good wish for the coming harvest.

Sir HUGH LOW said : The interesting paper which has just been read to us applies principally to the wet padi cultivation, and it is interesting to note the general resemblance of customs connected with this important cultivation in countries so far distant as the Malay Peninsula and Borneo from Ceylon itself. I do not propose to go at any length into these practices, but I may remark that as both Borneo and Ceylon have in ancient times been much under the influence of Hindoo civilisation, it is not surprising that these customs should have some considerable similarity though attended by very great differences. My principal object in rising is to ask your attention to a few remarks in connection with the reverence which I have seen paid by the Dyak races in Borneo to a *Liliaceous* plant of the genus *Pancratium* in association with the seed padi. This plant has a bulbous Amaryllis-like stem with three or four rounded cordate leaves on petioles about 6 inches long, from amongst which springs a flower stem bearing a crown of beautifully white and fragrant flowers, rising to a height of about a foot above the ground. The plant is, I believe, known botanically as *Pancratium Amboinense*, or *Euryycles Coronata*. By the land-Dyaks it is called Sikudip, and by the Si Buyoh sea-Dyak it is named Si Kenyang, and it is believed to have been given by Tappa, their Chief Spirit, to the Dyaks with the padi seed with instructions that it should be taken great care of, as the Spirit of the Padi (its "semangat." as Dr. Tylor kindly reminds me) could not survive without its presence. It is planted with the grain and taken up when the harvest is gathered in—the root being preserved amongst the seed padi until the next planting season arrives. On the only occasion on which I saw the plant in flower an altar of the ivory bamboo was erected over it on which were offerings of rice, other kinds of food and water. I have never observed more than one or two roots in a padi field, and these are generally planted near the hut occupied by the family of the owner. The plant is not known as a native of Borneo, but from its specific name I imagine that it is a native of the more Eastern Molucca Islands, which may indicate that padi cultivation among the Dyaks was originally introduced from that direction, from which the original immigration of the race may also have taken place. It would, however, be interesting to ascertain whether the plant is held in similar veneration in Java, Ceylon or India.

The Lex Barbarorum of the Daghestan.

By Professor MAXIME KOVALEVSKY.

I AM sure to be approved by those who have made a special study of the so-called customary law, if I say that the chief difficulty of their investigations lies in the total want of chronology as soon as one enters the bright field of folk-lore. It is all very well to repeat after Puchta and so many other German legists that the origin of custom lies in the very soul of the people, that for this reason alone it is older than the oldest of written laws. The moment comes when bondage to theory must ply to evidence; and such an evidence has been recently brought forward by the almost complete edition of the sacred books of the East, by which the English and more particularly the Oxford scholars have acquired a new right to the gratitude of historians, lawyers and folk-lorists all over the world. From the moment when learned Orientalists under the guidance of Professor Max Müller have revealed to the larger public the religious, moral and legal ideas of our remote ancestors no special study of the customs and usages of some definite people or tribe can be tried without a look to this common treasure of old knowledge and old prejudice. On Caucasian folk-lore, of which I have made a particular branch of my investigations, the sacred books of the East have thrown a quite unexpected light. They revealed the fact that many a usage which has already lost its meaning even in the eyes of those who follow it, had its origin in the religious, moral and legal ideas summarised by the compilers of the Avesta.

The people among whom the usage still lives (I mean the Chevsurs, Pschavs and Touchins) have little or nothing in common with the old Iranians; they belong to the Cartvelian race, they speak a dialect of the Georgian, but their remote ancestors have been placed centuries ago under the military command and the cultivating influence of the Sassanides. And this accounts for the fact why survivals of Iranian ideas about purity and impurity still live among these highlanders, who, during ten months in the year, are prevented from any communication with the outer world and stick to their old creeds and practices with quite a religious fanaticism.

Applying the same method of investigation, I mean the comparative one, we come to the rather astonishing conclusion that Greek and Roman, as well as Persian and Georgian cultures, have left their traces in the Caucasian folk-lore. The rules and sentences attributed to old customs are very often but an adulterated reproduction of some ancient law. Religious and

legal codes, such as the Bible and specially the Decalogue or the Digest, of which an Armenian monk, Mechitar Gosch, has introduced a good part in his private compilation, have contributed to a large extent to the evolution of Caucasian custom. Thus contrary to current opinion, custom is not always the source of written law. Sometimes it is the reverse; to account for the origin of custom we have to make a large appeal to ancient legislations.

This conclusion, which for the majority of European nations presents but a theoretical interest, in the vast Empire of the Tzar is not deprived of practical importance.

In our extension to the south-east we come in conflict with Mahomedan civilisations, powerful enough to keep us in check during several decenniums. Saying this I have more particularly in view our dearly acquired successes in Daghestan, where the capture of Schamil was as you know followed by a complete pacification of the country under our rule. The first administrators of this province—men of the sword, not of knowledge—attributing the animosity we inspired to the influence of the Mahomedan religious and civil law, the so-called schariat, thought it wise to prohibit its application in the courts. Accordingly they appealed to local custom. Private arbitration remained the general rule, and elected judges, under the supervision of a Russian official, were entitled to pronounce in civil and criminal causes according to the dictum of old and well-accredited men; the authority of the legal doctor Navavi whose code, the Minhadg al Talibin, the same still in use in Java, belongs to the small number of juridical treaties left by the school of Schafai, was to be recognised no more. Now this was, on the part of the government, a voluntary return to old barbarism. The customs of the Daghestan are those of a people who still admit the vengeance of blood, and make the remotest relation of the murderer or some other trespasser responsible for his deed. It contains among other rules this astonishing one; a husband who murders the adulterer on the spot side by side with the wife, is free from punishment or private vengeance: but if one of the two victims survives, the criminal responsibility of the trespasser begins.

This way of proceeding, this systematical hostility to written law and high appreciation of custom had at least one happy result. It induced the search for old collections of local customs and usages. It was supposed that the rulers of the Avars, still inhabiting the high plateau of the Daghestan, had proceeded to a sort of codification of these old customs.

During a long time all researches were fruitless. At last a code was discovered. It belongs to the Tartars of the Kaitag, a

province placed at a small distance from the Caspian Sea, not far away from the once Persian town Derbent. This code is known to the people under the name of the Code of Roustem-Khan. Now who was this Roustem, and when did he live?

Some years ago I had the occasion to study the accounts which the Dutch traveller Olearius left of his journey to Daghestan and Persia. There I found the only mention we have of Roustem judge or "outzmi" of the Kaitag. Olearius applied to him, in the name of the Shah of Persia, as to one of the at least nominal vassals of this empire. The Dutch traveller visited the country in the second quarter of the seventeenth century. To the same period belong the two letters of the Persian rulers, Abbas and Safva, directed to the same Roustem; the first is dated 1609–10, the second 1619. In these letters Persian merchants are placed under the protection of the outzmi. The Shah makes him responsible for the preservation of peace on the land placed under his rule. This land, called the Kaitag, lies on the way from the Persian town Derbent (on the shore of the Caspian) to the dominions of the Schamchal of Tarki, another vassal king, whose power on the native tribes, had been established, according to the French travellers such as Chardin and Tavernier, under the pressure of Persia. The Code of Roustem, a Russian version of which is preserved in the official records of Derbent, is not the personal work of this celebrated ruler and judge, but a later compilation, dedicated to his memory. The precise title runs as follows:—"A code of the customs or adats of the Kaitag, made in memory of the outzmi or judge Roustem-Khan."

Although the Code of Roustem is but of a relative antiquity, it is unique in its way, not only in this sense that we have no earlier compilations of Daghestan usages, but also because of the antiquity of legal customs mentioned by it.

Let me call your attention but to this fact; all payments prescribed by the code are to be effected not in money but in kind. The chief merchandise of the country consisting of very ordinary linen, known under the name of chabzaldick, the code prescribes to the misdoer to pay to the grieved party as well as to the judge a fixed number of kari, something like a metre of this linen.

Amercements are not inflicted for all kinds of trespasses. Vengeance and private forcible entry are admitted as a rule in all cases of criminal or civil offences. Consanguinity to the remotest degree makes a person jointly responsible. The Roman "gens" survives in the touchoum of the Daghestan. Whole villages are occupied by families pretending to descend from some supposed and mythical ancestor. Each of the members

of the touchoum is bound to prosecute the trespasser and to revenge the misdeed on him or his relations. A legal saying inscribed in the code and still repeated by the people says: "blood must be washed with blood." This means that in case of murder or wounding, not only the trespasser but each one of the members of his touchoum or gens has to expect vengeance on the part of the touchoum, to which the victim belonged. The same mutual responsibility exists in the case of forcible entry. The last is known under the name of "schikil" and is still used in the Kaitag. Any appropriation of things belonging to a foreign touchoum empowers all the members of the last to a forcible entry on the goods and chattels of each of the parents and relations of the offender.

Stating this the law-giver only confirms the existing practice. But his intentions have a wider and nobler end. He is ambitious for nothing less than the extinction of private vengeance and private forcible entry. He accordingly prescribes the transfer of the trespasser to some remote village and orders it to give him hospitality. He also establishes the way in which an accommodation can be arrived at between the party of the victim and that of the offender. It is the same way which is followed in our own days all over the Daghestan. According to general usage the last offender appears unarmed and with an uncovered head before the tribe of the offended. The next relation, the brother or the son, of the victim receives him with kindness and places his hand on his head in sign of peace and pardon. Mediators establish the amount of the composition or wehrgeld by which the feud is to be brought to an end.

As to forcible entry, without abolishing it entirely, the Code of Roustem tries to limit the sphere of its action; no recourse to it is allowed unless the creditor acts publicly. Who attacks the property of the debtor in some deserted place is condemned to repay ten times the amount of his appropriation.

Certain persons, judges, officials, old men in general, are declared free from any forcible entry. This is also the case of those who have declared their desire to break with their own gens or touchoum. This desire must be expressed in a solemn way still in use among the inhabitants of the Daghestan. Who wishes to be delivered from all joint responsibility has to make his desire known to his neighbours and tribesmen. At some meeting in the mosque he declares openly that every tie is broken with the touchoum, to which he did belong. In commemoration of this a nail is solemnly placed in one of the walls of the temple.

As to the other modifications of the principle: eye for eye, tooth for tooth, they all proceed from the teaching of Mussulman lawyers, and may be cited as an evidence of the early

influence exercised by the shariat on the customary law or the adat of Daghestan. Let me say a few words more as to the legal position occupied by the law-giver himself, the outzmi or judge. It is that of a private arbitrator, who by and by became a judge and military commander of his people.

It has something in common with that of the judges of Israel and the Brehons of old Erin. A feature common to the outzmi and the Brehon is that both keep their legal learning for themselves. You know what Maine has said on this subject. His critic, M. D'Arbois de Jubainville, has not contradicted him on this point; quite the contrary, he has more plainly stated the fact, that sentences pronounced by the Brehon and serving as precedents in case of new disputes, were communicated by the way of teaching only to his direct pupils. The same was the case with the outzmi of the Kaitag.

The code we try to analyse inflicts a high amercement on those who make use of it without the permission of the outzmi. A sentence placed at the head of the different articles is: "who keeps his mouth will not lose his head." No commentary is wanted. The words reported plainly state the obligation to keep secret the different rules which the treaty contains. The outzmi was not the absolute ruler of his subjects; in the times of Roustem he was only a judge bound to the exercise of his duties. One of the legal prescriptions of the code mentions the case if the outzmi should refuse to accommodate the parties. Such a judge according to law ought to be deposed. The outzmi does not pronounce the sentence by himself. He is surrounded by old men, who form a sort of council, and give their opinion as well on administrative matters, such as peace or war, as on legal.

The code admits private vengeance even towards the outzmi. At the same time it entitles him to receive the wehrfeld of those who have no family or gens. Such is more particularly the case of strangers and of Jews. "Who murders a Jew has to pay to the outzmi the weight of the dead body in silver."

MAY 14TH, 1895.

E. W. BRABROOK, Esq., F.S.A., *President, in the Chair.*

The Minutes of the last Meeting were read and signed.

The presents that had been received were announced and thanks voted to the respective donors.

The following papers were read:—

“ Pygmies in Europe.” By Prof. J. KOLLMANN.

“ The Hastings Kitchen Middens.” By W. J. LEWIS ABBOTT, Esq., F.G.S.

“ Notes on a Remarkable Barrow at Sevenoaks.” By W. J. LEWIS ABBOTT, Esq.

“ Notes on some Specialized and Diminutive Forms of Flint Implements from Hastings Kitchen Midden and Sevenoaks.” By W. J. LEWIS ABBOTT, Esq.

“ The Rock Paintings and Carvings of the Australian Aborigines.” By R. H. MATHEWS, Esq.

PYGMIES IN EUROPE.

By Professor J. KOLLMANN, M.D., D.Sc. (Dubl.).

NEAR Schaffhausen, in Switzerland, a settlement has been found which was inhabited during three pre-historic periods, viz., the palæolithic, the neolithic, and the metallic. The different periods were distinctly separated from one another by each stratum being differently coloured. The palæolithic stratum contained a large amount of broken bones, mostly of the reindeer, and, in lesser numbers, those of the horse, the arctic fox, the bear, and other animals, but no bones of human beings, only worked flakes.

This stratum was covered by a great layer of breccia, 80 cm. in thickness, containing angular fragments of the calcareous rocks close by. As this layer contained no trace of human industry, from which it may be inferred that a long period—numbers of centuries—probably intervened, before another human race again settled at Schweizersbild.

The next stratum contained articles characteristic of the so-called neolithic period in the history of mankind. The art of making pottery and of cooking, had by this time been introduced, as is proved by potsherds being found on the settlement, as well as a great quantity of ashes, which gave a grey tinge to the stratum. The animals which supplied the food of these new human beings were also different from the species of former times. The reindeer existed no longer in this latitude, but, instead of it, we find the stag, the roe, the black bear, the moor-ox, and other animals. This neolithic stratum has an average thickness of 40 cm. It is finally covered by a

layer of humus 40–50 cm. thick. During the formation of this last stratum, man had ceased to settle for any length of time under the shelter of the over-hanging rocks, here placed in a semicircle, for protection against northerly and north-easterly winds. The implements found in this stratum were few in number and of an inferior kind, therefore the so-called metallic period need not be further alluded to. Very different is the importance of the neolithic period. In the stratum formed during this time many human beings were buried, adults as well as children. Dr. Nüesch (from the College of Schaffhausen), who discovered and explored the settlement with the utmost care, found more than twenty interments in this stratum.

After due examination of the remains, I find among those interred eleven children, from the new-born up to the age of seven years. Some of them were buried with particular care, having been surrounded with stones, and still wearing a serpula necklace. Among the adults were found :

(1) Skeletal remains of normal-sized persons of the usual European type, such as represents the actual population down to the present day. Fig. 1.

(2) Portions of skeletons of small human beings, which, considering all accounts we possess about pygmies of other continents, must be regarded as pygmies of the neolithic period of Europe Fig. 1.



FIG. 1. FEMUR OF A TALL MAN AND OF A PYGMY FROM SCHWEIZERSBILD.

The remains of these two very different types were found lying side by side in the neolithic stratum, and showed no perceptible difference in the manner of their burial. From this we may conclude that the people lived together in peaceful harmony, notwithstanding their great difference of race.

The remains of four full-grown pygmies were anatomically evident; probably there was another of these little individuals

buried in tomb No. 9, but the proofs are not sufficiently clear to make us fully sure of the fact.

The stature was ascertained according to the methods indicated by Manouvrier and Rollett, from the length of the femur. Though the results of both these methods are somewhat uncertain in consequence of variations arising from individuality, sex, and race differences, which may amount to as much as 70 mm., still they enable us to prove to a certainty the diminutive size of these pygmies in comparison with full-sized races. Measured according to Ménouvrier's method, I get the following results:—

Stature of No. 2	...	1,416 mm.
" " 12	...	1,355 mm.
" " 14	...	1,500 mm.

According to Messrs. Sarasin, the medium stature of the Veddas of Ceylon is 1,575 mm., while the average stature of the three European pygmies is 1,424 mm., so that they are shorter even than the Veddas by 100 to 150 mm., or more.

Although these results of the comparison of measurements exclude every possibility of error, we had still another opportunity of proving the existence of pygmies at Schweizersbild. M. Mantegazza very kindly granted me permission to examine the skeleton of an Andaman islander in the Anthropological Museum of Florence, the Andamanese being one of the varieties of pygmies. M. Regalia kindly assisted me in the measurements. The femoral length of this skeleton is 424 mm. The femoral length of Schweizersbild skeletons is as follows:—

No. 2	...	369 mm.
" 12	...	355 "
" 14	...	393 "

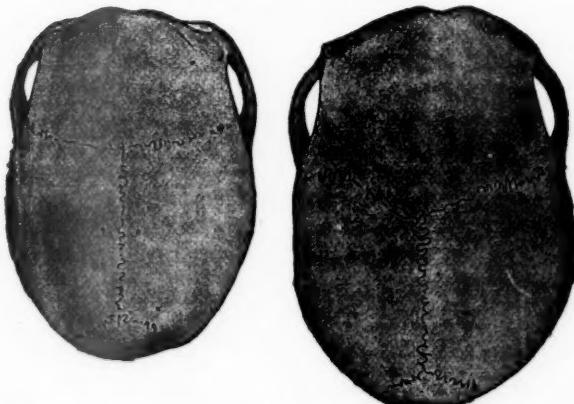


FIG. 2. NORMA VERTICALIS; SKULL OF A PYGMY OF SICILY AND OF A TALL MAN OF EUROPE.

The stature of the Andaman is 1,500 mm. If therefore this Andaman islander, with a femoral length of more than 400 mm. has a stature of only 1,500 mm., the pygmies, with a femoral length of less than 400 mm., must surely have been of very low stature.

Flower has had an opportunity of examining twenty-nine skeletons of the natives of the Andaman Islands. The average length of the femur is from 398·7 to 393·4, in the males, and, in the females, from 378 to 380·4. The average height of the males, calculated from twenty-five femora, is 1·431, or 4 feet 8·3 inches. In the case of the females, the height is 1·383, or 4 feet 6·4 inches. From these figures of the femur length it may be seen that my estimate of the height of the European pygmies of the neolithic period is not understated, but most liberally calculated.

	Tall race.	Pygmy race, Sicily.	Indices.	Tall race.	Pygmy race, Sicily.
Capacity ..	1460	1031	Cephalic index ..	78·3	73·5
Length ..	191	162	Height, length, index	78·3	80·2
Breadth ..	141	119	Breadth, height, index	100	91·0
Height ..	150	130	Face index ..	61·9	72·5
Frontal width ..	104	88	Mid-face index ..	42·3	44·4
Circumference ..	533	468	Orbital index ..	77·5	83·7
Frontal arc ..	138	113	Nasal index ..	51·0	60·2
Parietal arc ..	122	130	Palatal index ..	82·7	118·4
Occipital arc ..	118	104			
Total ..	378	347			
Facial length ..	88	87			
Maxillary height ..	60	53			
Bi-zygomatic width ..	142	120			
Orbital width ..	40	37			
Orbital height ..	31	31			
Nasal height ..	49	41			
Nasal width ..	26	25			
Palatal length ..	52	38			
Palatal width ..	43	45			
Basal length ..	110	81			
Occipital length ..	81	51			

The tables contain the measurements of the skull of an average European, and those of the skull of a Sicilian pygmy for the use of which I have to thank Professor Sergi (Fig. 2 and Fig. 3). The difference is remarkable between the absolute figures, thus the large skull has a capacity (Broca) of 1460 cc., the pygmy skull only 1031 cc., the former is 191 mm. long, the latter only 142 mm. For further details I would refer to my paper which has appeared in the "Zeitschrift für Ethnologie" (Berlin) 1894.

As to the remains of adult males of the taller race found in seven of the tombs, I found the length of a femur from tomb No. 5 to measure 454 mm., which gives a stature of 1,662 mm., the normal stature of the taller European races. I found portions of several other skeletons from the neolithic stratum referable to some more individuals of the taller race, but was unable to take satisfactory measurements of them, owing to their imperfect state.

The results of this examination prove that pygmies have lived at one time at Schweizersbild. They must not be considered as pathologically degenerated people, since Professor R. Virchow states expressly that their bones are of normal structure. Consequently we find here a miniature type of man with distinct anatomical characters, which differs as much from the taller size varieties of mankind, as do the pygmies of Africa, Asia, and the Asiatic Archipelago.

The discovery at Schweizersbild of the contemporary existence of pygmies and normal sized types during the neolithic period being unique, would certainly have been looked upon with some incredulity. But while I was engaged upon the examination of the settlement, Sergi, assisted by Dr. Mantia, discovered some living pygmies in Sicily and Sardinia. Sergi has also a fine collection of skulls of these pygmies, in which the cranial capacity is 400–500 cc. lower than that of the taller European races. The pygmies in Sicily are of very small stature, being generally under 1,500 mm. Small people are not only met with in Sicily and Sardinia, where, in several districts, they form 14 per cent. of the population, but all throughout Italy, according to Sergi, who quotes from the enlistments for the army. He believes them to exist also in Russia, as he found some very small skulls in the craniological collections there, similar to those from Sicily.



FIG. 3. NORMA FRONTALIS OF THE SAME SKULLS AS IN FIG. 2.

As regards the appearance of these living pygmies in Sicily, they seem to have the looks of miniature Europeans. For further particulars, I refer to M. Sergi's memoirs on the subject. As for myself, the point I particularly wish to impress is that to the normally tall varieties of man in Europe must be added smaller types which have their own special place in the anthropological system. These latter are not simply diminutive examples of the tall races, but represent a distinct species of mankind, which is found in several localities dispersed over the globe. We are led to believe that these smaller varieties have been the predecessors of the now predominant types of full-sized humanity. To prove this argument to its full extent is the task of anatomical science, and I beg to direct the special attention of anatomists to these diminutive individuals wherever an opportunity may occur of examining any of them.

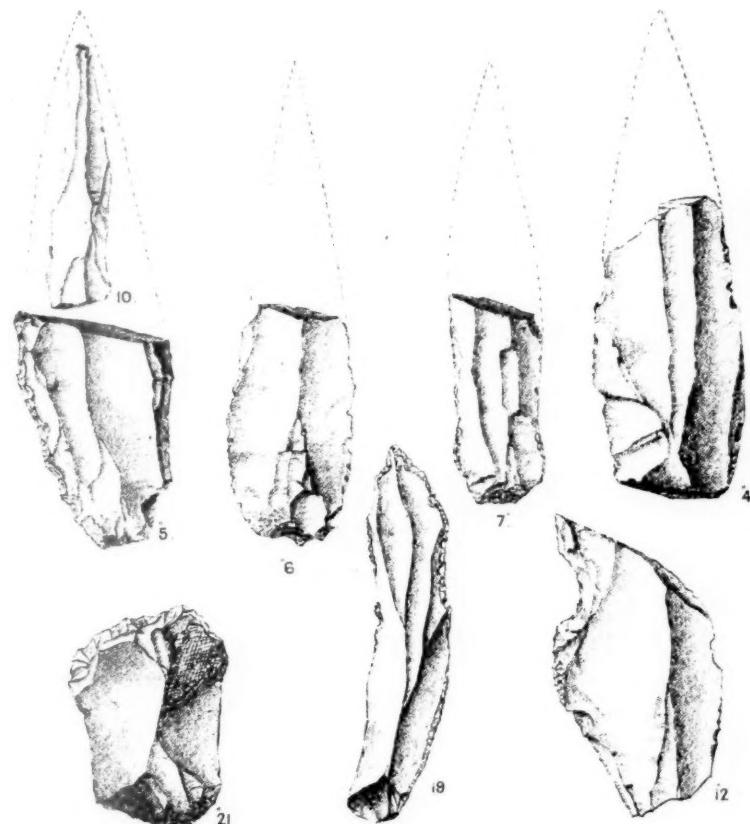
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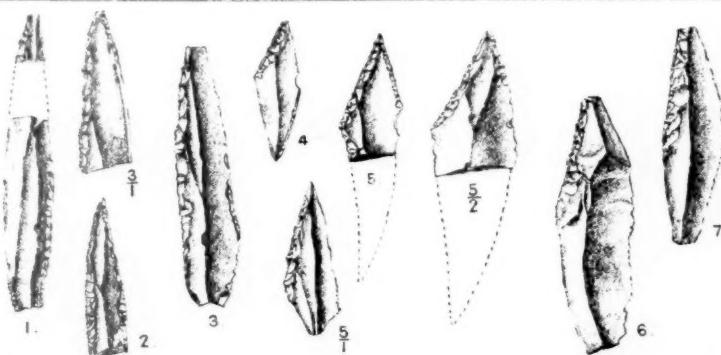
The HASTINGS KITCHEN MIDDENS. By W. J. LEWIS ABBOTT,
F.G.S.

[WITH PLATES X, XI.]

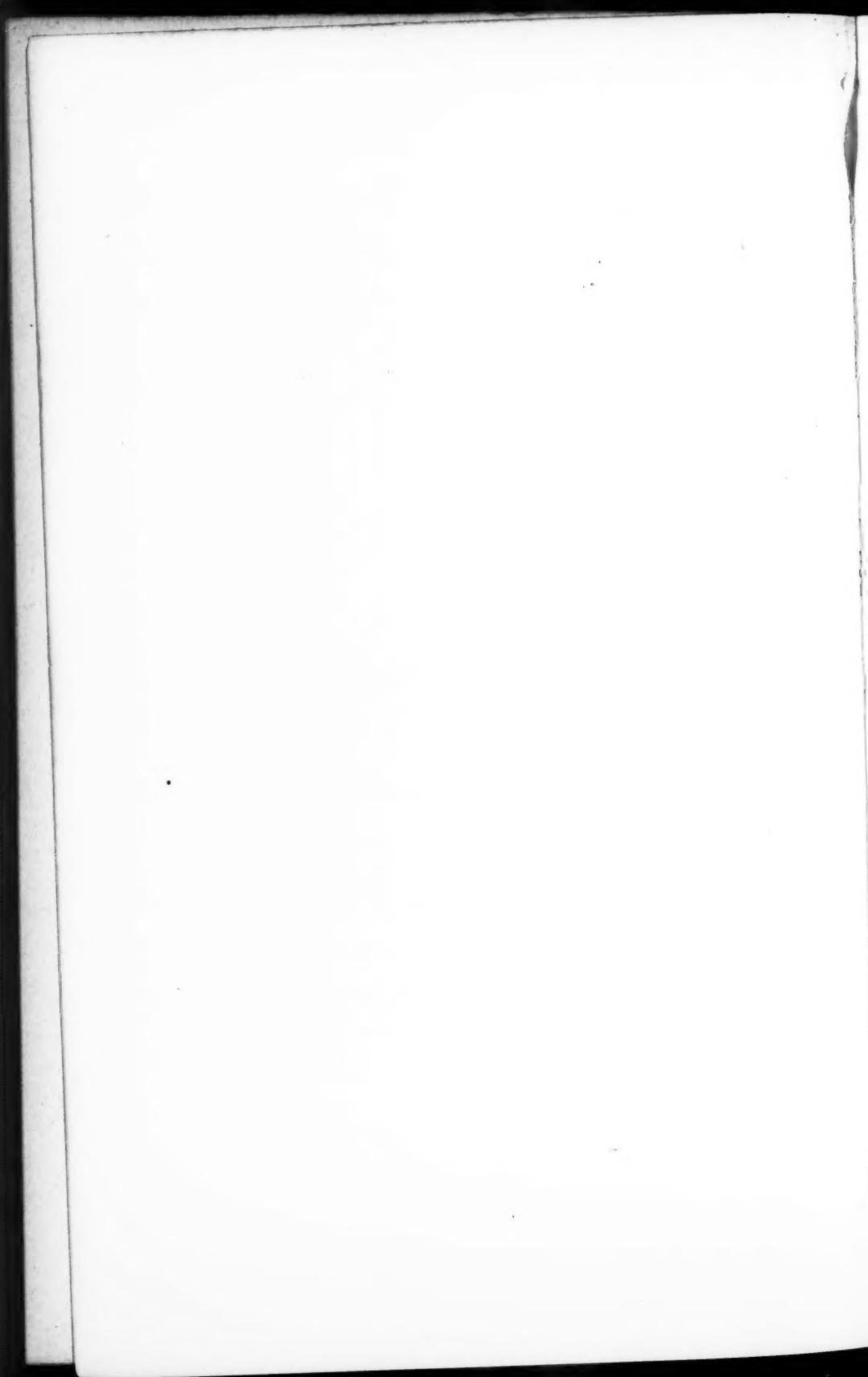
As one stands upon the high ground to the north of Fairlight Glen and contemplates the outstretched panorama, what a remarkable record of battles lies stretched out before him. Now

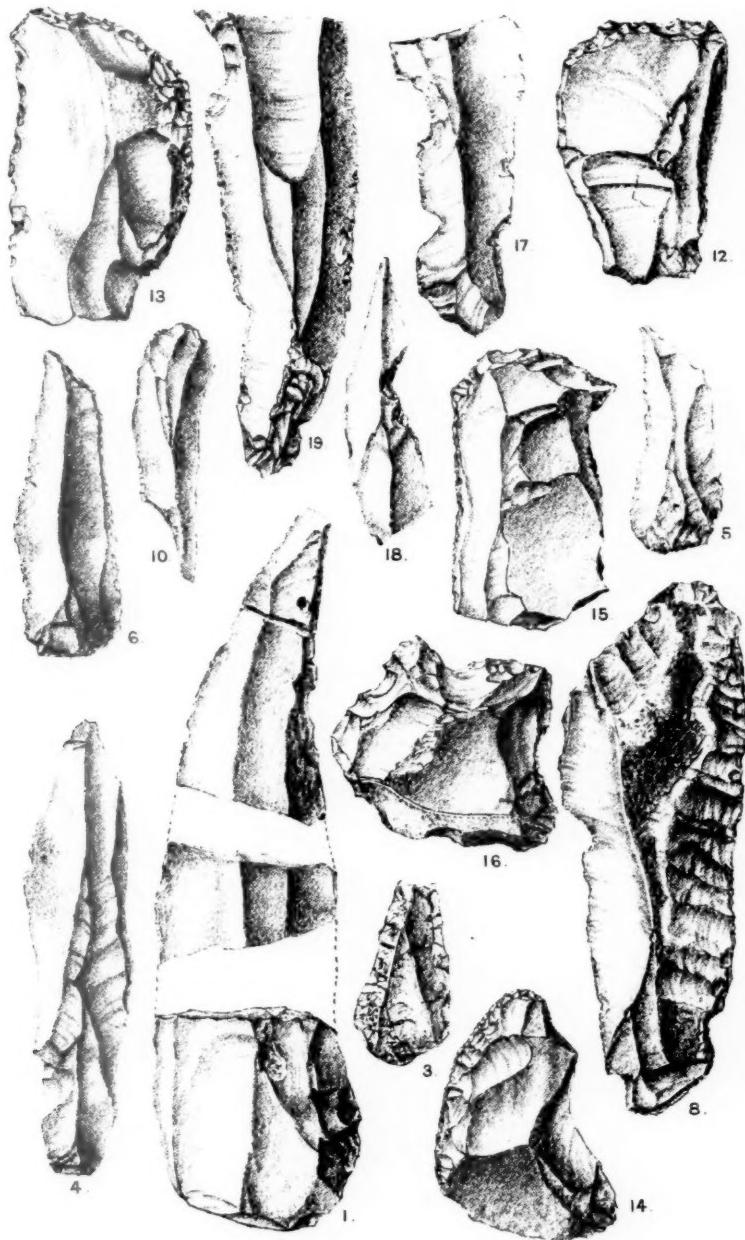


IMPLEMENT FROM THE HASTINGS KITCHEN MIDDENS.



DIMINUTIVE IMPLEMENTS FROM HASTINGS AND SEVENOAKS.
(NATURAL SIZE)

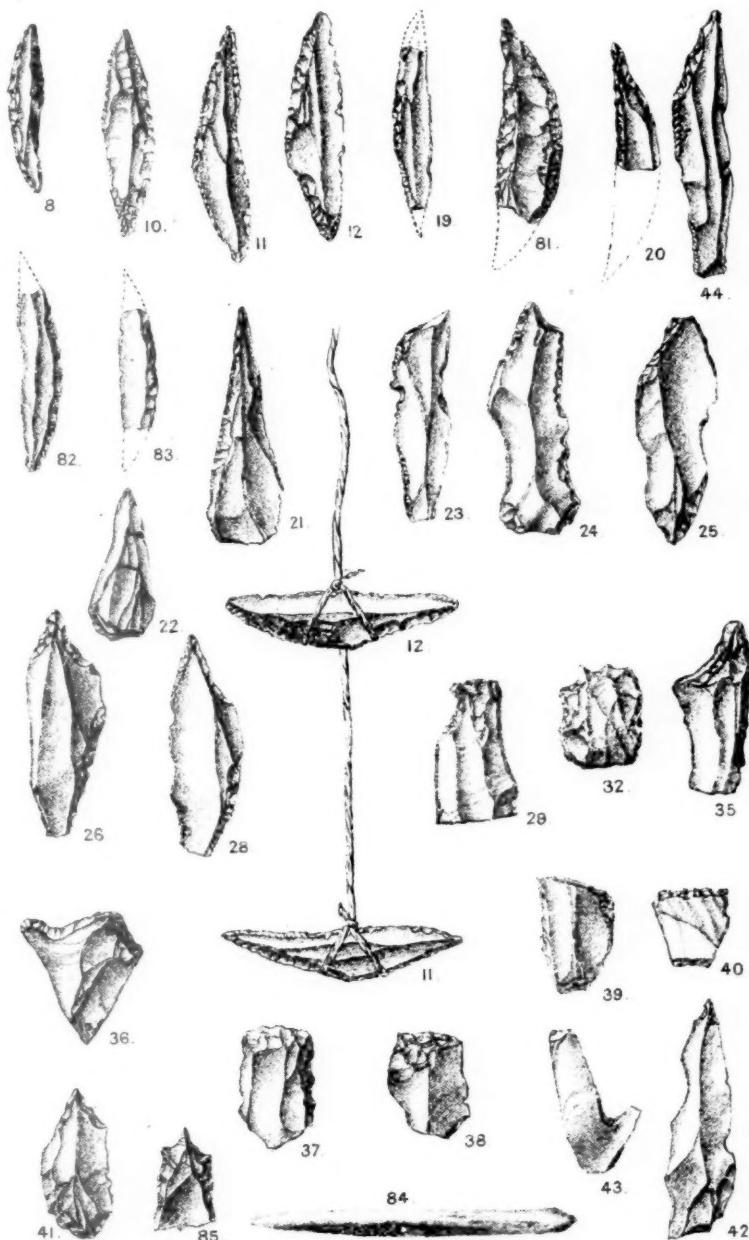




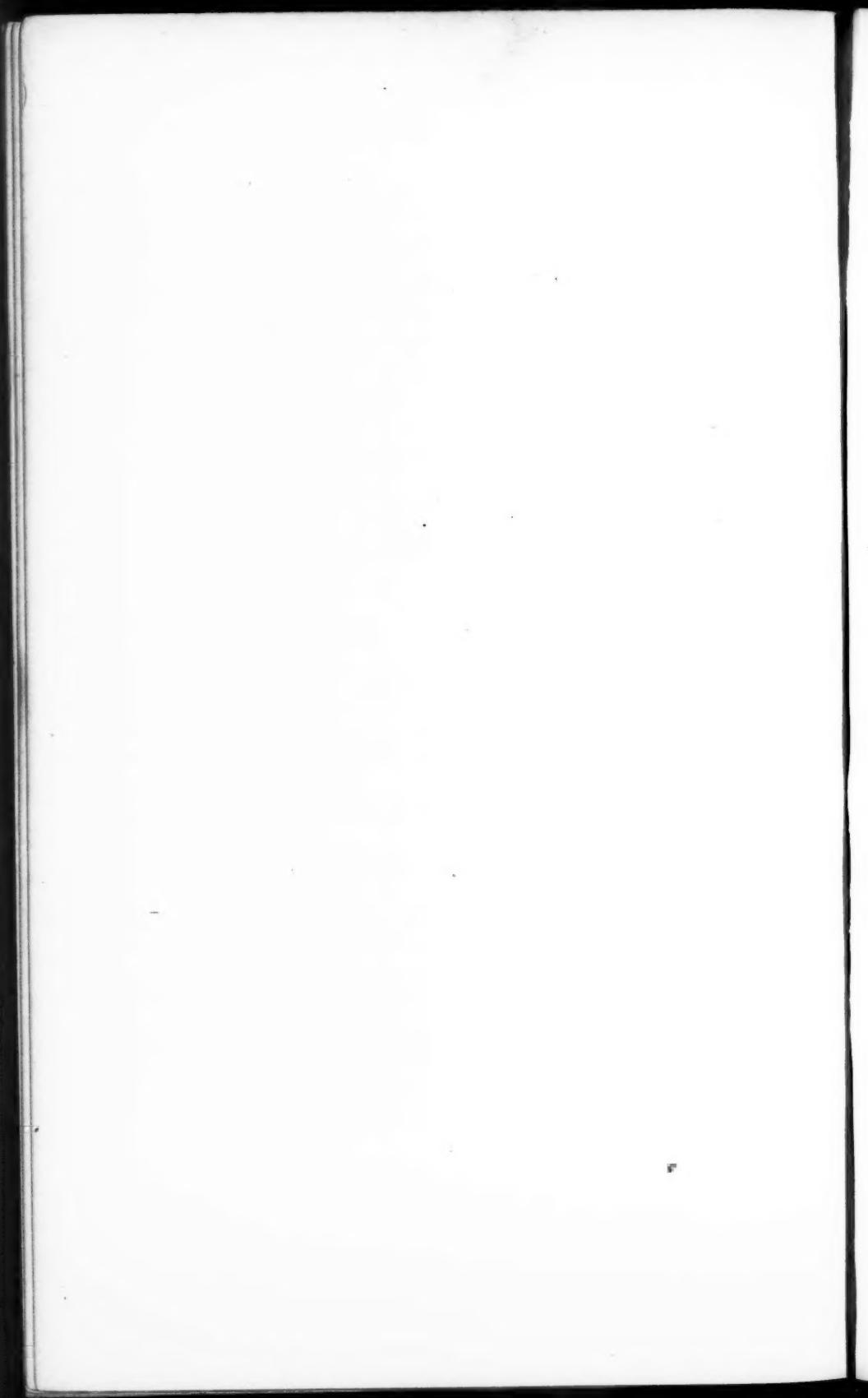
IMPLEMENT FROM THE WILDERNESS BARROW.
(NATURAL SIZE)

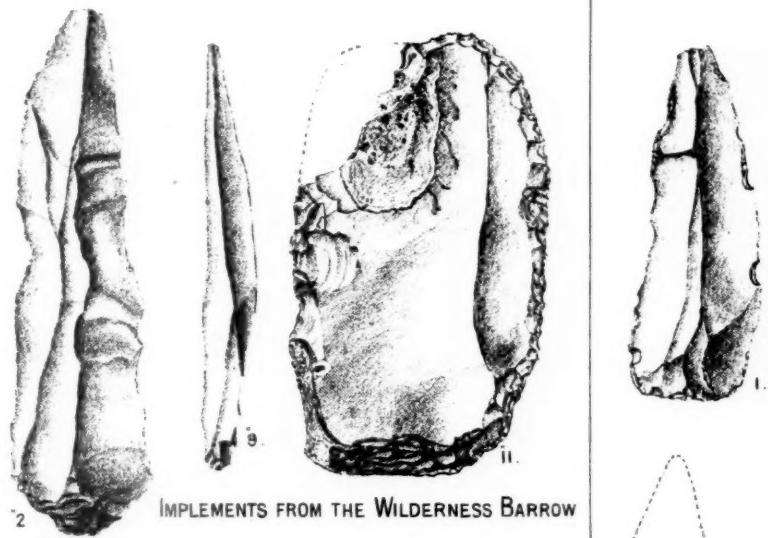
HARVEY & SONS, LITH. OF MARTIN'S LANE, E.C.



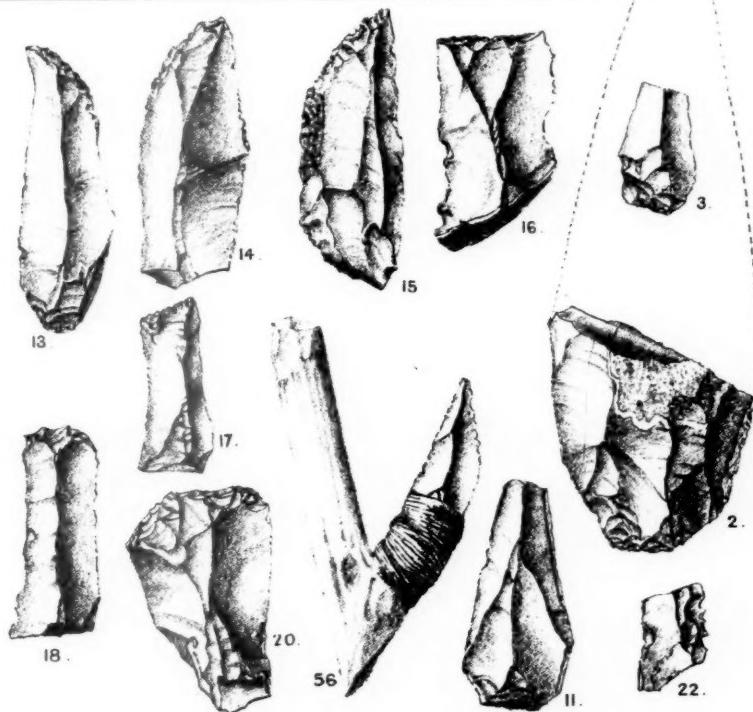


DIMINUTIVE IMPLEMENTS FROM HASTINGS AND SEVENOAKS.
(NATURAL SIZE)

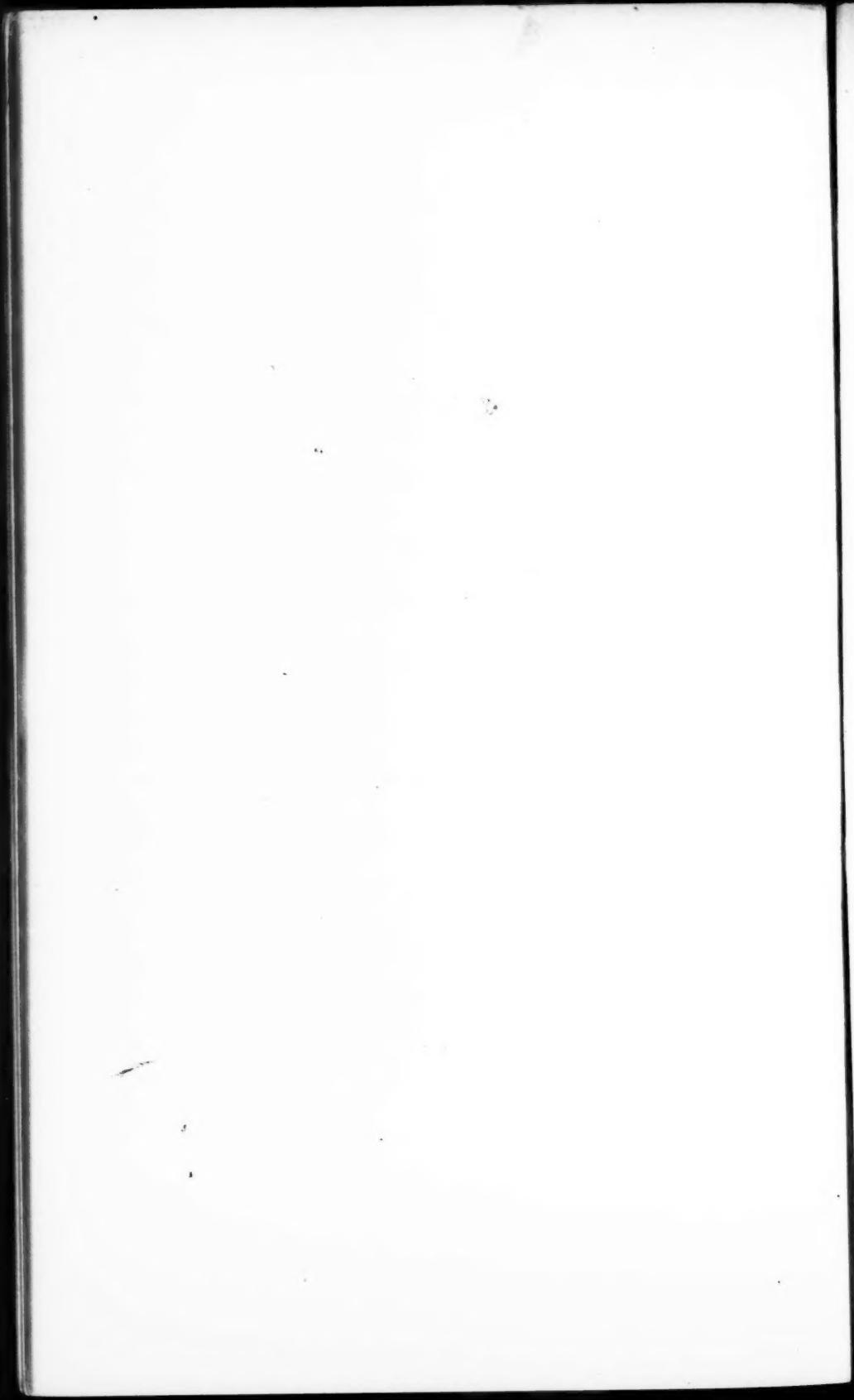




IMPLEMENT FROM THE WILDERNESS BARROW



IMPLEMENT FROM THE HASTINGS KITCHEN MIDDENS.
(NATURAL SIZE).



this stream has been victorious, and now the next; now a further impetus was given to the third, and it conquered for a while the other two. Thus have the bloodless battles raged in the past, the history of which is written in the physical features of the district. If we approach the streams from the channel, we soon perceive from the height at which the old river channels now meet the coast line, that in the days of these old fluviatile contentions, the mainland extended far away out into what is now the English Channel, and that since these times the land over which the old streams flowed has been destroyed without leaving a trace behind. There is, however, no reason why the upper reaches of these rivers should not yield a good harvest to the diligent investigator, despite the fact that scarcely anything has been recorded from them.¹

The commanding positions of these well-watered areas must have made them very desirable situations for early man, especially when we remember their proximity to the sea.

There has probably been comparatively little alteration in the coast line here since late neolithic and bronze times, and the fissured rocks and rock ledges, then, as now, must have offered tempting habitations for those who lived either by their hunting and fishing, or even for the more civilised domesticators of cattle.

For the last four years I have been paying special attention to the fissures of the Wealden area, and, as is known to many fellows of this Institute, those in the north Weald have yielded a unique fauna. These fissures exist all over the area from the North Downs to within a few yards of the coast, and probably extended over the lost area. Sometimes they are mere cracks, at others they open out some 20 or 30 feet wide, or form trough faults between which the intervening rocks become keyed, and form veritable caves, large enough for habitation. Scores of these are exposed along the cliffs at Hastings, yet so far as I am aware no one has investigated them. Even the magnificent and unparalleled "St. Clement's Caves," which probably originated in this manner, being enlarged and connected by ambidextrous stone-age man, and subsequently more so by right-handed iron-age man, are allowed to be libelled with a smuggler's legend.

The part to which I chiefly confined my operations was Castle Hill, although I obtained implements, bones and shells for a distance of considerably over a mile. This hill is 178 above O.D., and is bounded on the east and west by one of the old valleys previously referred to. It is made up of Ashdown beds: they are somewhat friable sandstones, yellowish-white in

¹ Several re-worked palæolithic flakes were found in the Middens.

colour, thickly bedded with occasional partings of crushed (brecciated) clay and clay iron-stone. When the sandstones crop out on the foreshore, they are often very hard, and contain a large quantity of iron. They are very much fissured, sometimes every 20 or 30 feet. There is a clay with brecciated sandstone and ironstone shown at the top of the cliff, very similar to the intercalated beds, and above this there is a surface wash, or a deposit of blown sand 2 to 3 feet thick. This surface material fills the tops of most of the fissures shown. The strike of the main fissure is approximately south-west by north-east. My excavations were at first principally confined to this fissure; it is from 3 to 6 feet wide, and runs somewhat parallel with the cliff face, the upper portion is some 30 feet above a high ledge about 50 yards wide, which, at a height of from 80 to 100 feet, exists at this place. Upon the majority of wide ledges—whether formed by the weathering of the rocks, or the filled-in tops of the fissures—the midden material exists in large quantities. After removing about a foot of blown sand, &c., the middens are reached; probably about nine-tenths of the material is dirt, the rest relics of man's occupation, which therefore occur in bushels. They embraced the whole paraphernalia of the life of the period, and consisted chiefly of shells of molluscs, bones of animals, birds, and fish, stone and bone implements and pottery.

Vertebrates of the Middens:—Of the bones, the principal species represented is perhaps the small ox (*bos longifrons?*) and wild boar (*sus scrofa*); these latter occur in all sizes. All the limb bones of all species are split up for their marrow, and in two cases, I found a flint wedge still *in situ* in a cracked bone. The next most plentiful bones were those of sheep or goat. The rest of the vertebrates are represented by a few bones only. The roe, the fox, and the badger being represented each by a single bone.

Birds:—Up to the present at least, three forms of birds have been identified, one, a duck of some kind, the black grouse, and a third, closely allied, if not identical with, red grouse.

Amphibia:—There were several bones of the frog or toad; but whether the modern French relish was used as food or not we have no evidence.

Fish:—The number of fish bones was fairly large, and of these a half-dozen species have been identified; the cod being the most plentiful.

The whole of these bones have been worked out by Mr. E. T. Newton, F.R.S., with whom I have for so long had the honour of working.

A large number of the bones are incised, and show the marks

of the flint tools in the cutting up of the animal ; one or two have been worked into tools.

The Mollusca :—Of the mollusca *Littorina littorea* (Linn.) was the most common, these are all of large size, and well preserved ; although not so well as in some of the Red Crag Beds.

Next in numbers came the *Patella vulgata* (Linn.), of which there were several varieties.

Next came *Ostrea edulis* (Linn.) of small and medium sizes, none were "natives," and none the large variety now found in the deep waters of the channel.

Cardium echinatum was fairly plentiful, but *C. edule* absent.

Buccinum undatum (Linn.) was well represented by several varieties ; but *trophon* was absent.

There were also a few specimens of *Purpura lapillus* (Linn.). It would be interesting to know if these old fellows ate this species, or if they knew of its purple juice. It might have been taken up by accident in mistake for *Littorina littorea*.

Mytilus edulis (Linn.) was also fairly represented, and in another part occurred in great numbers.

Single specimens were also found of *Natica catina*, *Mactra*, and *Pholas crispata*.

Pottery :—Fragments of pottery were fairly plentiful, mostly small, but in some cases about a quarter of a vessel was found ; while in other cases the pieces were large enough to identify the shape of the vessel. They were all domestic, large-bottomed utensils, all was coarse thumb-made, generally well-baked ware, usually black, but sometimes dark brick red.

Many of the pots and potsherds were incrusted with burnt carbon indicative of having been used upon a fire. Very few pieces showed any decoration.

Fire :—There were fragments of old hearths, or burnt earth. In one instance about 2 feet in diameter, and a number of bones, including horse, were burned as if in roasting, and charcoal was fairly plentiful in this deposit.

List of species recovered from the Kitchen Middens :—

MOLLUSCA.		VERTEBRATA.
<i>Ostrea Edulis</i>	(Linn.)	Gurnard.
<i>Mytilus</i> "	"	Mackerel.
<i>Cardium Echinatum</i>	"	Turbot.
<i>Mactra (sp)</i>	"	Plaice.
<i>Pholas Crispata</i>	"	Whiting.
<i>Buccinum undatum</i>	"	Cod.
<i>Purpura lapillus</i>	"	Toad or Frog.
<i>Littorina littorea</i>	"	
<i>Patella Vulgata</i>	"	Black Grouse.
<i>Natica Catena</i>	(Da C.).	Red "

Duck of some kind.	Badger.
Rabbit.	Dog.
Horse.	Wolf.
Roe deer.	Fox.
Sheep or goat.	Man (implements and pottery, &c.)
Ox.	
Pig.	

Implements :—It is, however, the implements found in the midden, that will probably be considered the most interesting. These may be roughly divided into three groups. First, a minor group of the ordinary neolithic forms such as are found practically all over the country. Secondly, a large group containing forms identical both in general appearance and detail of secondary work with those found in the French caves ; and thirdly, a group of highly-specialized forms, which are often identical with some of those described before this Institute by Mr. Allen Brown, as occurring in India, Arabia, South of Spain, and South of France.

Crude material, flake implements :—In several positions I found small heaps of pebbles, the latter being from $2\frac{1}{2}$ inches to 4 inches in diameter, brought up from the beach ; these were treated in two distinct manners ; in one they were “quartered” into irregular large flakes, from which were fabricated various more or less leaf-shaped implements, of the more ordinary neolithic forms. In the other the flint was worked to a core from which were struck the flake implements, which form so marked a feature in the general facies. One of the first facts that forces itself upon one is, that the majority of the ordinary operations of daily life in these times must have been performed by simple flakes ; they were, in fact, the knife and fork of every-day life. So varied do these become in consequence of the multiplicity of operations for which they were employed, that it would require a monograph to describe them. It appears as if the cutting was usually effected by a scraping action, that is, with the arm moving *towards* or *from* the body, rather than by a sawing motion. Usually the wear is from the flake face, but sometimes it is from the ridge face. Frequently these are reversed, showing that first one side was employed, and then the other ; in yet other cases the hand-grip was reversed, the two edges and ends being alternately used. Although most of these owe their present outline to the original shape of the flake modified by use, there are yet scores of others of peculiar forms which are obviously due to design, although it would be extremely difficult—or indeed impossible—to say to what special use such forms could have

been put. But in this case, as with the plateau forms, our inability to assign to them their original uses in no way invalidates their claim to human origin. Disregarding the mere irregular-shaped spalls resulting from working cores into shape for flaking, the flakes are extremely good. They have invariably a flake face, usually incurved from bulb to point, and a ridge-face, generally consisting of several facets, Plate X; these are most often three in number, parallel, and of great regularity, at times almost recalling to mind the beautiful obsidian working of the Mexicans. In by far the greater number there is a tendency for the sides to approach, thus producing a tapering point; the latter often turning to either the right or the left. Such flake implements were used for a multiplicity of purposes, for which they were sometimes prepared by secondary working. In a very large group we find the butts well shaped by minor or secondary working, to oval, rounded, or nearly square, as in Nos. 4, 5, 6, and 7, Plate XI. Now as this working of the butt often consists in the removal of from six to ten small flakes, which in many cases had been detached by blows administered beyond the present periphery of the butt, I was interested to find whether this was done before or after the flake was dislodged from the core. Moreover as I found many cases where a most excellent butt had been worked, and then the flake face run off short or obviously gone in the undesired direction (as they will when the blow is not administered correctly), I came to the conclusion that the butt was worked off the projecting ridges of the core, before the last blow was administered, which dislodged the implement from the nucleus, complete and ready for use. For nearly three years I carefully examined every core I found, in the hopes of being able to prove this to have been the *modus operandi* of manufacture; ultimately I found one which I think settles this question. This shows the implement ready to be dislodged by the next dextrous blow, and also the shape into which the block was brought in the process of fabricating the implement. Implements of this form varied in size from about 4 inches down to about a $\frac{1}{4}$ inch in length, and were probably used for small spear heads and arrow tips, and considering the nearness of the sea, and the large number of fish bones in the middens, and the proximity of other situations in which I have found them to water, I am inclined to think that many of them were used as fish-hooks. With our refinements of the modern age of steel, we might not at first be inclined to realise the probability of this, but when we call to mind the clumsy things still used in many parts of the globe for this purpose, we realize that some of the midden fish-hooks were

of almost Waltonian dimensions. No. 56, Plate X, suggests a method of fastening these hooks. By far the greater number of these were broken, and as the broken surface and the rest of the implements generally show the same degree of patination it is more than probable that these were broken in the chase or in fishing, and when the old fellows returned home, they replaced the broken implement by a new one, and threw the old piece upon the refuse heap. This will also account for the existence of so many more butts than tips in the midden. No. 7, Plate XI, shows a small series of these. Although the majority of these flake implements have bulb-butts, there is another series in which the bulb formed the point, some of which must have been extremely difficult to make, as although the point is sometimes touched up with secondary working, at others it is just as it was struck off, and yet is capable of perforating. See No. 10, Plate XI. When the last blow did not close up the side of the flake to a point, it resulted in a parallel-sided implement; this was probably used for a knife, which sometimes was hafted as No. 10, Plate XIII. In the average outline of these implements, the length is four to five times the width, sometimes it goes to eight or nine, while in others it is about as $2\frac{1}{2}$: 1; when they become more leaf shape (No. 11, Plate X). There were two very interesting flakes about $3\frac{1}{2}$ inches long, and $\frac{5}{8}$ -inch and $\frac{3}{4}$ -inch wide; the points and edges of these show signs of use; they may have been fabricators.

From the simple used edge flake, we pass to the side and hollow scrapers. The hollows are sometimes single (as No. 12, Plate XI), at others double (as No. 17, Plate XIII), usually they are on the side of a shapeless flake, but occasionally they occur on the side of a well-formed spear or lance head as No. 18, Plate XIII, the same as we find them in the paleolithic *hâches*. The positions of the hollows are extremely interesting, being variously placed from the base of the flake to the point; in the latter case they pass into gouges, chisels and gravers.

The side gouges are exactly similar to those from Laugerie Basse, Gorge d'Enfer, and the Madelaine. In the middens and the Sevenoaks districts, the right and left curved points pass into those with bisymmetrical convex ends, thence through the rectangular, such as those from Les Eyzies, with edges both at right angles and oblique, to those with convex points such as have been found in Le Madelaine. A series of these is shown in Nos. 13 to 18, Plate X.

Drills, awls, or perforators:—There is a well represented group, both in the middens and from Sevenoaks, of those forms which have been variously called by the above names. Some of these are exactly similar to the so-called awls or gravers from

the Madelaine; the Americans call them perforators. They are usually made from a long flake, the top of which is brought, by secondary working, to an equilateral point, such as No. 19, Plate XI.

In others they are short and very small, but just as symmetrical, and in the highly specialised ones, the butt is rounded and secondarily worked. In others they are more irregular, similar to ordinary neolithic forms, and often show reversed working or the abrasion from boring. In size the perforator is from a $\frac{1}{8}$ -inch equilateral triangle down to about the size of a very small worsted needle. In yet others they are long pyriform shapes, 3 inches by $1\frac{1}{4}$ inches, tapering to a three-sided point, which show signs of use in boring.

Scrapers:—In the middens only one or two of the ordinary thumb scrapers were found, but there were several spatulate forms, somewhat thick and short, as No 20, Plate X, and No. 21, Plate XI, the latter being worked at both ends, and a half-a-dozen more or less leaf-shaped, small thin implements which from their shape and used edges might be called scrapers.

Flint saw:—There was one very delicate little flint saw with fine teeth (No. 22, Plate X); it is less than half the size of the one found on the Sevenoaks settlement.

Cooking stones:—The soot upon the pots and the quantity of charcoal and old hearths, clearly point to an extensive use of fire and the ordinary process of boiling; still there were a quarter of a peck or so of the so-called "pot boilers"; considering that the gipsies still invest the hedgehog with a clay jacket, then cover it with flints, and these with wood, in the process of cooking, there is no reason why pot boilers should not be found long after the art of cooking in baked earthen pots had been discovered. The idea that these stones were dropped into pots to heat the water is not supported by the physical condition of the flints, nor by the survival of the custom of "cooking the hedgehog in his jacket."

The highly specialised forms:—The charming little highly specialised forms which occur in the middens can be best appreciated when described with others from the neighbourhood of Sevenoaks, and will therefore be included in a succeeding paper; no large war implement was discovered, and no traces of polished stone.

In the early spring I hope to expend the rest of the grant made to me by the British Association for these researches, which I hope will bring to light some further features of interest of which I at present have only the indication.¹

¹ Since the above was written extensive excavations have resulted in a great increase of material which, when worked out, will add greatly to the list of objects recovered.

Conclusion :—Finally I cannot help feeling that the productions of a position and conditions like these, must for ever settle the question of the human origin of the plateau specimens. No one for a moment could attempt to doubt the human origin of these used flints, and one may therefore ask why one or two still refuse to accord a similar origin for similar work when it occurs in other positions which would require an extension of the period sometimes assigned to man in Britain. Here in the middens we have irregular flakes of all sorts, sizes, and descriptions, just picked up, used, and thrown down again; every edge is fresh and sharp, except those that have been used, exactly as they are in the unworn plateau specimens, yet we cannot call beach-action to our aid in the formation of these hollow scrapers nor the guilty plough for taking off one side of a flake to make it bilaterally symmetrical, nor can these flints even be said to have been in any way submitted to the vicissitudes of gravel making; yet few are aware of how great a number of even the most specialised of these midden implements have their prototypes in plateau forms. But leaving this question out of consideration I trust that you will admit that I have done sufficient to show that we have veritable kitchen middens in this country, and that although somewhat different from those of the Continent and Scotland, that the result, so far as I have gone, shows that they were waste heaps for the reception of disused rubbish, shells, bones, potsherds, and the other paraphernalia of life, whatever further developments may reveal. I trust you will further allow that these discoveries point to the fact that there is such an immense amount of undeveloped material just outside our own doors, that until we know much more about it, we had better beat our pens into geological hammers.

NOTES on a REMARKABLE BARROW at SEVENOAKS.

By W. J. LEWIS ABBOTT, F.G.S.

[WITH PLATES X AND XIII.]

IN no spot in this country is the history of man upon our planet so consecutively written as on the Sevenoaks counter-scarp; and in addition to the five great period-peoples¹ who have been described as having left their relics behind in this locality, more detailed survey shows that the last great period, the neolithic, was characterised by a number of distinct races, each with their own sites, their own mode of life and special implements. Unfortunately, when I commenced my researches in Sevenoaks, I was a victim to a now exploded idea that "surface

¹ "Natural Science," vol. iv, p. 266.

finds have no scientific value, and accordingly the results of my first year's labours were greatly discounted, as I merely put together all neoliths from one district without detailing the *exact* spot from whence they came. However, I soon discovered that certain fields or spots are characterised by implements of one type, and others by another, the areas being well defined when taken in connection with the present lie of the surface. The sites selected by these various peoples are in many respects quite different: thus the pit villages or pit dwellings are on commanding positions, without regard to proximity to water, other settlements are on valley sides near good drink supplies, while others are near large lakes or rivers.

In early pleistocene times a stream rose on a part of the greensand counterscarp, which has since been removed, and flowed through what is now Knole Park—where it received east and west branches—over the Wildernes, thence to the old Darent. This old Knole river must have come in contact with a flint gravel left behind in the very early denudation of the Holmesdale valley, as the favourite implement-making material occurs sparingly distributed through its gravel, and its banks and crests formed favourite sites for neolithic peoples. Subsequent denudation has greatly altered the surface of the country, but at one time the Knole must have been an important river, for as much as 12 feet of gravel is still left in places. Soon after reaching the Wildernes the old stream appears at one time to have branched out to the north-west, excavating several valleys, and cloaking them with gravel, or else, with the lowering of the waters of the Knole, the springs on the west thrown out by the fullers-earth bed gave rise to coombs, over whose surface the previously deposited gravels crept down. One of these valleys still carries water at about a quarter of a mile from the old Knole valley, and in a few hundred yards turns the Greatness Mills. Such a well-wooded, well-watered spot as this, sheltered by commanding high grounds, and withal, provided with sufficient material for flint implements, must indeed have offered a tempting position for a settlement, although, so far as I have been able to find, only one particular race ever appropriated it. On the east side of the Knole, only a quarter of a mile distant, we have the relics of a more warlike tribe with polished celts and barbed arrow tips, implements altogether different from those of the race about to be described. On the north-east side and south-west of this bank, for a distance of about a quarter of a mile, a people settled whose implements were extremely varied, but on the whole very similar to those of the Hastings Kitchen Midden, hundreds of them being identical.

Upon the heights separating this valley from the next, which are

less than a quarter of a mile apart, there is a remarkable barrow now to be described. The bed rock is of Folkestone sand which here, in an undisturbed state, is deeply iron-stained, and in places carries contorted seams of highly ferruginous sandstone, known as carstone. The barrow was planted with firs about one hundred years ago : it is practically round, being about 80 feet by 90 feet and about 5 feet 6 inches high. In opening it a trench was run across the centre from north to south, and from east to west. For the first 4 feet the material was a dark, slightly carbonaceous sand, and, with some half-dozen workers, only three flints were found in the whole of the excavation of this material. This was followed by a ferruginous sand which had become quite panned and solid ; and when reached it was agreed by all present that the cleared surface represented mother rock, and that we had not struck oil, and, yielding to the advice of others, I abandoned the exploration. I must confess that this was extremely disappointing, as Lord Hillingdon, his sons and some friends had been good enough to come down and witness the discoveries which then ended in nothing. The next day I resolved to set to work again, and break through the solidified sand which I soon did, and came upon a layer of white sand, then a layer of carstone, then a remarkable layer of carbonaceous material and burned implements ; then another layer of carstone, which apparently rests upon undisturbed Folkestone beds. The upper surface of the lower band of carstone, in the centre, was covered with a black, somewhat greasy-feeling, excessively dirty carbonaceous material ; a condition descriptive of the whole of the material between the two carstone layers. Here and there we found extremely small fragments of burned bone, but never a quarter of an inch in length, although the cellular structure of the bone was often distinctly visible, and pieces of wood charcoal were fairly common. But the most remarkable thing was that, be the carbonized body what it might, cremation had evidently been effected by covering it with implements and then lighting the fire over them. During the process of calcination the implements—of which there were simply thousands—naturally went to pieces, and in some cases absolutely fused at the edges. I have been able to restore a number of these. Now and then I have been fortunate enough to get adjacent pieces, but, in by far the greater number of cases, shapes are restored from the unburned specimens in the white band and the adjoining settlement. Everyone who has examined this black material recognises in it the usual feel of the material resulting from cremation. Canon Greenwell has notified the fact that a similar unctuous layer was found in the Rudstone barrow. The most remarkable

thing was, that the white layer was practically full of implements; towards the centre they were often burned, but the proportion of the calcined specimens diminished as the periphery was approached. I do not know an exposure of a bed of white sand of this description within nearly half a mile. It is perfectly white, and the line both above and below is absolutely sharp. It extends over the whole of the area that has been excavated, and appears to cover up the remains contained between the two layers of carstone. At first I thought these flakes and implements might have been brought in with the neighbouring soil, but Canon Greenwell has shown the improbability, and indeed, in some cases, the impossibility, of this sort of thing happening,¹ and I think we may conclude that in these times it was a funeral rite of others than suicides that "shards, flints and pebbles should be thrown on her."

Altogether this is the most puzzling thing with which I have ever met, and several anthropologists and barrow diggers who have visited it, including the venerable Canon Greenwell, state they have never seen anything exactly like it in all their experience.

In conclusion, I beg to express my thanks to the Right Honourable Lord Hillingdon, who not only readily gave me permission to open the barrow, but allowed me the use of a labourer, and interested himself generally in the undertaking. I regret that his first visit was not accompanied with the success which afterwards rewarded more determined efforts. My thanks are also due to John Duce, Esq., for the help he afforded me in many days of unpleasant, hard, and dirty work, as the greasy dirt of the carbonised layer penetrated to our very skins in the process of sifting. So great indeed was Mr. Duce's interest in the affair that I think he really did the lion's share of the labour, at any rate, in the early part of the digging operations.

IMPLEMENTS OF THE BARROW AND SETTLEMENT.

The restored implements from the calcined layer, the white band and the settlement, are generally so inseparably alike that I feel certain it will be best to describe them together, and when any particular form occurs in one position and not in the other to notify the one to which it belongs. It has also already been pointed out that an identity exists between these and those from the Hastings Kitchen Midden. The first thing that would strike one in looking over a few trays of these implements is the remarkable likeness which they bear to those from the Dordogne. Indeed many of the figures in the magnificent "*Reliquiae Aquitanicae*" might almost have been produced

¹ "British Barrows," p. 11.

from these specimens. On the whole the Dordogne flakes are perhaps a little longer in proportion, and there is an absence in the English specimens of the more decidedly paleolithic haches, nor is the surface of implements (with one or two exceptions) changed and whitened as in the French series. Both in the barrow and the settlement there were large quantities of cores of every description, as might be expected from the large number of flake implements. To give anything like a good idea of the latter, several scores of these should be figured : their mode of manufacture was similar to that shown for the Kitchen Midden implements of a similar kind. No. 1, Plate XIII, is an example of a restored spear-head from the burnt layer : these are extremely similar to those from Le Moustier and other French caves ; very many hundreds of these fragments were recovered, of which this is among the largest ; they vary in size down to a little over half an inch in length ; a small one is shown in No. 3. Another variety of the same group is shown in No. 4, Plate XIII, and 2, Plate X. These forms are also characteristic of the French caves. They pass down into more lanceolate shapes, finally resulting in very tiny forms, less than half an inch in length. In this group very frequently the point of the implement is turned to the right or left, as in Nos. 5 and 6, a result which was obviously desirable from the fact that specimens are often worked into this shape by secondary trimming, which sometimes necessitated the working of the sides as well as the point. There is an immense group represented by very many hundreds of specimens of a more irregular outline, as though they might be the more abortive or accidental results in attempting the foregoing. These widened out on the one hand to mere wasters, and on the other they approach the before-described implements ; while in size they go from half an inch in length, up to 3 or 4 inches. These usually became knives and many scores of them show used edges, with all the variety detailed in connection with the midden knives. Sometimes this wear is only very slight, at others it is very hard. No. 8 is an exquisitely worked knife. There is another group where the flake is extremely long and narrow, exactly similar to those from Laugerie Basse, as shown in No. 9, Plate X. All the foregoing are bulb-based, but there is an extensive group of bulb-pointed forms of various descriptions, from quite narrow to broad large lanceolate shapes. There are others point to bulb curved, spatulate forms, some of which, such as No. 10, were possibly hafted. The spatulate forms carry us to the more decided scrapers, which will be described below. Up to the present the more lanceolate broad spear-heads have been neglected, but they are a group of so many varieties that they had better be

kept together. They commence at about $\frac{3}{4}$ -inch long, branching out in many directions, now with low ridges, when they approximate Nos. 1 and 4, the largest one being about 4 inches by $1\frac{3}{4}$ inches ; now they are higher and perhaps somewhat more irregular, while others branch out into broad leaf shapes.

The scrapers are extremely interesting, owing to the great diversity of shapes in which they occur in the barrow ; anything approaching the horse-shoe pattern was extremely rare, but in the settlement outside they were plentiful, and passed from that pattern in many directions, resulting in over a dozen different forms, some being quite thin, as No. 11, Plate X, and others just as thick, and pass down to a mere split pebble worked at one edge only. Amongst the curious forms reference might be made to No. 12, which appears as if it might have been hafted, and to No. 13, a similar hafted form from the Kitchen Middens. No. 14 is a beautiful specimen of delicate edging, the sharp curve in the flake-face making the edge extremely acute and well suited for cutting. Most of the forms lead up to the spatulate shapes, No. 15. These pass up insensibly to those gouge-like forms described from the Middens. The perforators are quite as varied as the scrapers, ranging from heavy clumsy things, 4 inches in length, down to the delicate little tools employed upon the eye of a needle. No. 16 is a useful tool of well known form.

In attempting to describe the hollow scrapers one is overcome by their numbers and diversity, as there are really dozens of varieties : they are formed by a hollow of any dimension and depth worked out of the side of a flint. Usually a flake is selected for the purpose, but not unfrequently a finished spear or lance-head is thus ruined. Sometimes there is a second hollow of a different size, and usually worked from the other side, indicative of turning the implement round end for end. Sometimes the hollows are on both sides and then show reversed working. Usually the blows or percussion was administered on the flake side, but not always. The position of the hollows, too, is most interesting and gives rise to a multiplicity of shapes ; occasionally it is at the extreme point, at other times just on the top corner, when it may, or may not have an overhanging beak. All these forms and many others concur in the Middens. Nos. 17 to 19 show examples of these scrapers ; from those places identical forms are found in one barrow. I have carded up several hundreds of the very small hollow scrapers which were probably employed in the manufacture of bone needles, also several cards of "used edges," to show the difference. In the latter the gaps are more or less irregular and simple, but in the former the hollows show signs of use or

secondary working which often requires the lens to make them visible. Closely allied to hollow scrapers is a form which also began in plateau times and has come down to the bronze age. It is a scraper with an O.G. top edge. It is remarkable how constant this curious outline has remained : it was found in the Midden, the settlement and the barrow, sometimes excellently worked. I am perfectly at a loss to understand how one can confound the rugged edge, which results from wear, with secondary working, especially if the latter is of anything like good quality, moreover "use" only removes flakes up to a certain angle.

We come next to gouges, chisels and gravers ; in the barrow and the settlement, all the forms described from the Middens occur plentifully where each group is strengthened and diversified, and new ones added. That the finely pointed tools were used as gravers becomes evident from the fact that nearly all show signs of wear on the cutting edge. In a very interesting group the point is doubly oblique, exactly as in the modern graver.

There was also one very fine little saw with fine well-formed teeth.

I trust you will not consider my enthusiastic admiration has carried me into too many details of these things when I tell you that the undescribed are far greater than the described. It is usual to pick out only the highly finished arrow-tips and polished celts, and discard many things which I have here brought together, but assuredly the former tell us no more of the modes of living of their owners than would a collection of modern maces. If we would gauge the abilities of a people and acquaint ourselves with their mode of life, we must obtain a comprehensive knowledge of *all* the tools they were able to produce and use.

So far as the barrow is concerned, although but very small quantities of bone were found, I have no doubt it was the burial place of a chief of this tribe, an opinion shared by all who have seen it, including Canon Greenwell.

I think you will also admit that this remarkable series of implements and flakes demonstrates beyond all doubt that surface finds *have* a scientific value, and the exact location of all neoliths should be correctly registered, and when this has been done throughout the length and breadth of the land, we may then be able to say something of the various peoples who have inhabited Britain.

NOTES ON SOME SPECIALISED AND DIMINUTIVE FORMS OF FLINT
IMPLEMENTs FROM HASTINGS KITCHEN MIDDEN AND SEVEN-
OAKS. By W. J. LEWIS ABBOTT, F.G.S.

[WITH PLATES XI, XII.]

IN 1888, Mr. John Allen Brown described before this Institute some small highly-specialised forms of stone implements found in India, Syria and South Europe, and asked English observers to seek for them at home. In the next year the same author again referred to them in connection with the dawn of metallurgy. In March, 1887, Dr. Colley March privately published an account of his discoveries of similar implements in a floor in East Lancashire, which at about a uniform altitude caps six conical hills. From the existence of the relics of an ancient growth of grass and brushwood, which is entirely different from the heather and moss which now flourishes here, from the presence of a layer of clay, and the whole being overlaid by a layer of peat 4 to 10 feet in thickness, Dr. Colley March infers that these hills, the heights of which vary from 1,300 feet to 1,440 above sea level, have been cut out since the now buried deposits formed a continuous floor over the country. A hundred and forty feet erosion over a fairly level country, however, is generally regarded as the work of a period which would carry us back to paleolithic times, and one cannot help wishing for a more extended detailed geological survey of the neighbourhood.

The Rev. Reginald D. Gatty, of Hooton Roberts Rectory, Rotherham, has also been engaged on these charming little objects, and in twenty years' diligent searching, during which time he has acquired many thousands of ordinary neoliths, he has only found these very small things in a very few localities, but from the exchange of sketches, our types appear identical.

In 1883, Mr. Elliott, of Camberwell, one of the most enthusiastic collectors of whom I have ever heard, found one of the small crescent forms near Warren Hill, in the valley of the Ouse, which is absolutely indistinguishable from the first one I found at the Hastings Kitchen Midden. For eight years he and Mrs. Elliott vainly searched for the floor whence it came, but, in 1893, Mrs. Elliott was successful. Here they found a large quantity of implements and flakes similar to those of the Settlement and some thirteen more of the little crescents. It is perfectly astounding how exactly these things resemble my own.

Dr. Colley March has also found them in the Isle of Man. I am also informed that one of these crescents has been obtained from the Thames, and one from the Surrey Hills. The localities

in this country in which these small implements are found are very limited, and the majority of our most diligent and experienced collectors up to the present have been quite unsuccessful in finding them.

On the continent the brothers Siret, whose extended work in Spain is well known to Members of this Institute, have found them in a number of places, while M. Pierpont has recently published an exhaustive paper upon them,¹ and their occurrence in the region of the Meuse. Up to the present they have been found under conditions which suggested an antiquity for them to their finders as great as the later paleolithic period and hitherto no organic remains have been found associated with them to shake the faith of the various authors in their higher antiquity. Mr. John Allen Brown, on the other hand, claims for them a date corresponding to the dawn of metallurgy. All of the above authors who have seen my specimens or drawings of them, regard them as similar to their own, but I think it will be admitted that the conditions under which the Sevenoaks and Hastings specimens were found, together with their associated fossils, can leave but little doubt as to the age of these interesting little tools. There are two features about them which to my mind distinguish them from all other implements—viz., their characteristic shapes, and peculiar quality of working, which is usually—though not always—present. Generally they are extremely small, but I do not consider size alone would have been sufficient to justify the placing of the implements into a special group, and assigning to it a special age.

I have many tiny flakes about $\frac{1}{2}$ inch long which owe their present, sometimes geometric, outline to secondary working and use, but I should have been inclined to have regarded these as only the small varieties of well known neolithic forms had it not been for the connecting forms. In many of the Indian specimens collected by Mr. Carlyle the characteristic fine work is not present, while his small flake implements I have placed with the other groups as the difference is one of size only, and in the thousands which I have collected there are no gaps. Moreover, it is certain that one people executed them all.

It is easy to distinguish between a used edge and an ordinary neolithic secondarily worked one; but in these little implements the work is dissimilar from both. In the former, the concavities or gaps are characteristically irregular, and the direction of them varies with the irregularities in the thickness of the flake, the molecular aggregation of the flint, and the

¹ "De très petits instruments en Silex provenant de plusieurs stations néolithiques de la Région de la Meuse." "Bulletin de la Society de Bruxelles," 1894-5.

angle at which the flake met the resistance; and if a levelling is effected it is accompanied by contusion. In the second case, when worked from a flake face the secondary flakes are usually distinct, resulting in well-marked concavities with conchoidal ribbing, usually being quite distinct and prominent, and extending across the whole of the flaked surface or edge. The implements under description are usually made from single-ridged flakes, or occasionally the other ridges present suggest intention or careful selection of flakes operated upon. One or more sides or ends are then reworked in a manner quite characteristic. The secondary working is always administered from the flake face and *not* from the ridge face, as is so frequently the case with used flakes. It comes upon the flake face at an obtuse angle of from 65 degrees to 80 degrees. It is, however, the regularity and fineness of the work which immediately distinguishes it; when the flake operated upon is about $\frac{1}{30}$ th of an inch and less in thickness, the secondary flakes are single, but when of a greater thickness than this, the larger flakes removed increase in size, and there is a tertiary flaking present in which the flakes are frequently about $\frac{1}{80}$ th of an inch wide, which give an almost smooth cutting edge. Straightness in the line of work, consequent upon the method by which it was effected giving rise to characteristic angularity of outline, and usually to asymmetry. This small work, however, is by no means confined to straight edges but is run round the hollows left by larger flakes with a regularity which is almost of machine trueness, or round the entire edge of the implement, irrespective of its shape, whether it be a lanceolate arrow-tip or one of the persistently queer forms the use of which is absolutely incomprehensible. I think it only fair, however, to state that since writing the foregoing, I have learnt that Sir John Evans considers that these curious little things "result from their use as scraping or boring tools, the flakes in the former case having probably had one edge let into wood which in consequence prohibited it from wear. The diagonal-ended flakes are also not uncommon and result from the end and not the side of the flake having been used for scraping." I thus have the misfortune to find myself entirely disagreeing with the verdict of Sir John Evans, although I am supported by every one who has studied these curious little objects. That they are not the result of use has been conclusively shown and in many forms they are worked all round, or in others on one side to produce bilateral symmetry, as in lanceolate arrow-tips. The drill or borer theory is a little astounding as nothing is so easy to recognise as an abrasion caused by a circular motion which necessarily brings the wear on alternate edges, but as has been

already pointed out the working (or abrasion ?) is always from the flake face except it be in finishing an irregular point ; moreover drills are well represented in a separated class where they are survivals of forms which first appear on the plateau. As to the long oblique forms, M. Pierpont figures an instrument used for tattooing amongst the Bengalas of Upper Congo to-day, of exactly similar outline to these ; and further these are often worked on three sides, and to a long hafting point. No operation with which we are acquainted could result in the outlines presented by some of these, whether they be the simpler lanceolate arrow-tips worked all round, the crescents similarly treated, or any of the more curious but persistent forms. We will therefore proceed to a brief description of some of these forms and afterwards see what inferences can be drawn from their characteristic working, their peculiar shape, the interesting positions in which they are found, and the things with which they were associated. Up to the present I have discovered about eighty specimens from the Hastings Kitchen Midden, the Wildernes Settlement and Barrow, at Sevenoaks, in which is included the field used as Seale's horticultural garden. I have also obtained them from other barrows and several other parts in the neighbourhood. In looking over the interesting collection of these forms in the British Museum or those in Mr. Allen Brown's collection, one cannot help being immediately struck with the identity of some of the forms found in Central India and England, and the quality and nature of the work. Of course the material is different ; in both cases the indigenous forms of silica is employed, the European flint being usually replaced in India by chalcedony, either white or red, and occasionally by jaspers.

Commencing with the most simple forms, No. 6 in Mr. Brown's paper is probably a broken implement as is No. 1 here shown, but in my case, the flint is of a peculiar colour, texture, condition, and of a spotted appearance ; it was found by my little five-year old daughter on the Wildernes Settlement, who also picked up a point, in every way, of the same character of flint, which possibly is part of the same implement. When complete the acicular tool was a little over $1\frac{1}{2}$ inches long and a $\frac{1}{4}$ of an inch wide at the broadest part. It was worked from a high flat-ridged flake, symmetry being obtained by the characteristic secondary work. I have a number of butt ends of this type, some much smaller, showing the same kind of secondary work. No. 2 is a perfect little implement from the Hastings Kitchen Midden of the same character, it is extremely sharp, and the sides, which are only $\frac{3}{4}$ of an inch in length, have been brought into shape by the

removal of over sixty minute flakes. It is very remarkable in how many instances the work is practically confined to one side which often brings the ridge from the centre to nearly parallel with the edge. Except in those more acicular forms, Nos. 1, 2, 3, bilateral symmetry is hardly ever aimed at. No. 4 is a charming little implement similar to the Congo tattooing instruments; it is just under $\frac{3}{4}$ of an inch long and $\frac{9}{16}$ of an inch at its widest part; the hafted end is very delicately worked to a point sweeping round in a graceful curve; the top left edge is replaced by an oblique point which cuts through the flake ridge, in about its centre. No. 5 is a similar instrument, half again as large; unfortunately this is broken. There is a variety of a somewhat broader outline and heavier make than the foregoing brought into the desired shape by this rectilinear secondary working on one side; the largest one is shown in No. 6, it is from the Hastings Midden; one from the barrow at the Wildernesse is shown in No. 7. In the Settlement and barrow, identical, though smaller specimens were found, where they were accompanied by similar forms with heavier and more irregular work, as No. 44; but in addition to the coarser secondary work, the finer tertiary work is also present, as in similar Indian examples. One of the most characteristic and at the same time most interesting groups is furnished by the crescent forms; although many of these are similar to some of the Indian examples; others differ in some respects. In the former they are usually an arc of a circle, or plano-convex in section; the chord forming the straight edge is usually unworked and quite straight (shapes, needless to observe, which would be absolutely impossible on the theory of Sir John Evans). My specimens are not usually so circular as these; owing to the rectilinear working they generally present a decided angular hump in the centre, and as frequently as not are worked on both sides; they pass from bilateral symmetry to deeply concavo-convex. I have found a large number of these crescents which have been broken, the smallest that I have found is about $\frac{3}{4}$ inch long, and $\frac{1}{6}$ inch broad in the widest part, No. 8. This is reworked, the whole of the convex side and the greater part of the somewhat concave side. No. 10 is a more bilaterally symmetrical form and worked as nearly all round as is necessary to secure the desired outline. Nos. 11, 12, and 19 all show that characteristic right line working which in every case gives rise to an angular hump or obtuse angle on the outer edge. Nos. 81, 20, 82, and 83 are examples of crescents, more or less injured. Considering that these are found in the midden in several barrows near water, and on settlements near large bodies of the piscatorial element, I am inclined to regard these as fish-hooks,

or gorgets; indeed there are several of the South Sea Islands where a similar barb is still used, mounted on bone or shell, as here shown. A similar thing in bone has been found by Dr. Corner in the later deposits under London. Mr. Elliott recently showed me three worsted needles suspended by their centres upon a string at distances of 9 inches apart and covered with red worsted which the boys in South London use for eel catching or as they term it "eel sniggling." I here exhibit three of these flint crescents similarly mounted, which, in the light of Dr. Corner's specimen, No. 84, similarly sharpened at both ends and pierced in the centre, in my mind leave no doubt as to the original use of these little crescents. The characteristic hump now furnishes the very best grip for the gut possible, as the latter passes round each side of it in the centre, meeting on the convex side and thus forming a V-shape. It is for such a purpose as this that the Indian chordeo arcs are essentially qualified while any other purpose is incomprehensible.

A remarkable example of the rectilinear working is also shown in No. 21 which more closely approximates to Fig. 1 of Mr. Allen Brown's 1889 note: it is reworked upon one side only, the flaking being of extremely fine quality and perfectly straight. No. 22 is a beautiful little equilateral lanceolate form $\frac{3}{4}$ inch long by $\frac{1}{4}$ inch broad near its rounded base, which might have been an arrow-head; it has one of these flaked bases described in connection with the midden implements, made by the removal of eight or nine long minute flakes, before detachment from the block; the edges are then secondarily worked in a very delicate manner. Two curious deviations from the one-sided and rectilinear working are furnished by Nos. 23 and 24; these are reworked all round resulting in the most fantastic and apparently useless forms. That there was an object in these shapes becomes evident from the very existence of the specimens, but their exact use must for ever remain a mystery. A remarkable group is formed by such as Nos. 25 to 28, which are related to the crescents on the one hand and hollow scrapers on the other; they are about $1\frac{1}{2}$ inch in length and $\frac{5}{16}$ ths inch wide at their widest part; they are worked to a point at one end, and at the other the usual outward curved edge of the crescent is replaced by a hollow, from $\frac{1}{2}$ to $\frac{5}{16}$ ths inch long; they are both right and left handed. Although the hollow scrapers appear extremely rare in the Indian specimens, at the localities under description I found a great many. Nos. 29 to 35 form a series of these of which No. 29 is extremely interesting from its hang-over beak. Nos. 32 and 35 are forms which first appear in the plateau specimens and are well represented in the Indian implements; the smallest specimen of this type I have from

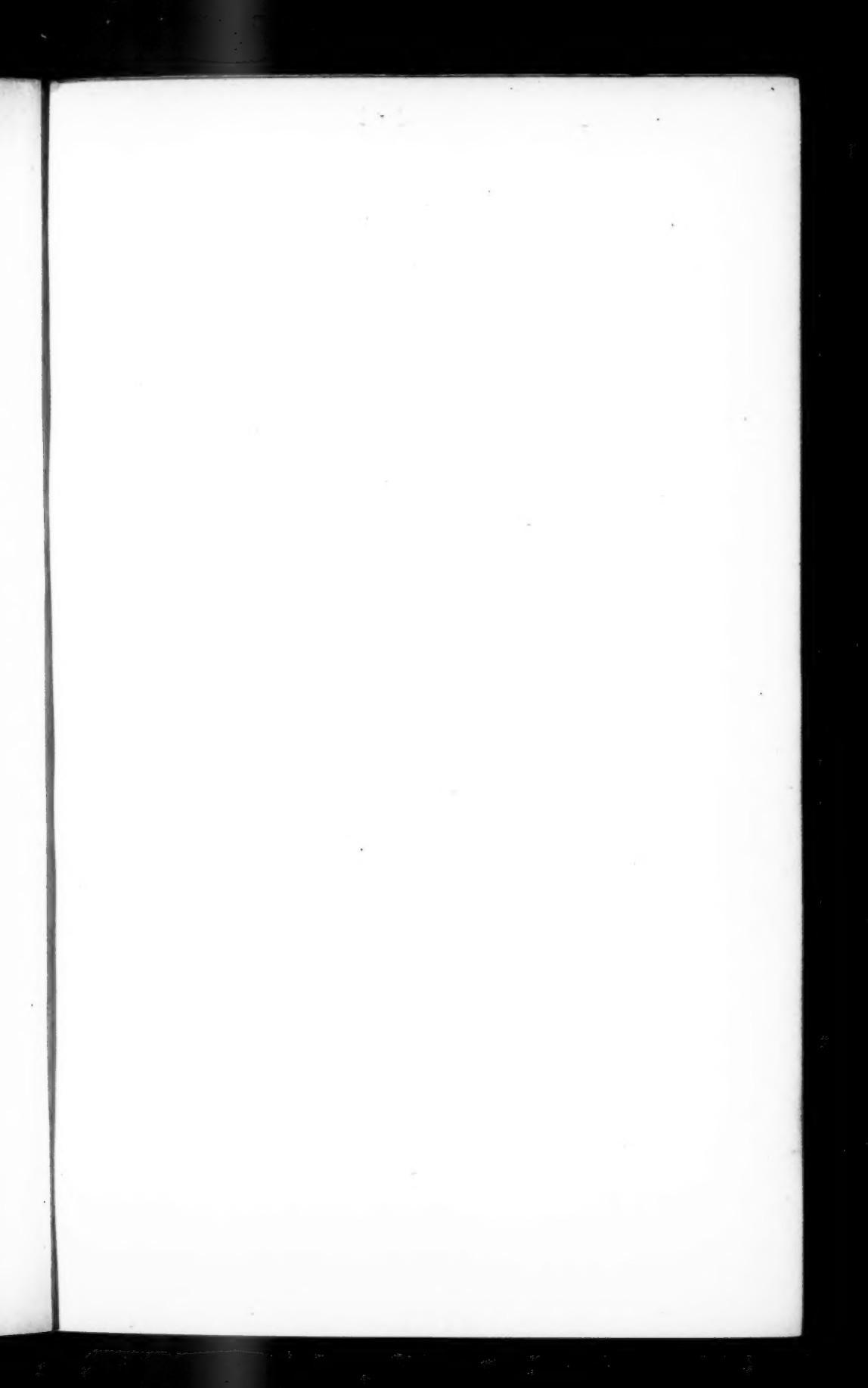
the former is about 2 inches in length, but paleolithic specimens are less than 1 inch long. The other hollow scrapers lead up to forms which occur by the hundred in the Middens, Barrow and Settlement. In No. 36 we have one of those curious "O.G." forms; these appear to pass to forms such as Nos. 37, 38, and 39, which I regard as chisels or end scrapers; their shortness would suggest that they must have been hafted. These slightly curved specimens pass into those with quite straight oblique cutting edges, characteristic of the triangular and trapezoidal forms. In No. 40 we have an example of the true trapezoidal forms, this is $\frac{1}{4}$ of an inch along its longest edge and 13 along its cutting edge; that this is not a flake with a worked edge that has been accidentally broken is absolutely certain from the fact that the secondary work turns round both of the top corners and continues down one side. I have several examples of worked flakes, accidentally broken into something of this shape, but they are readily recognisable. In No. 41 we have the representative of a group of delicate little tools with elaborately worked butts, the use of which is obviously drilling as is No. 85, while in No. 42 we have a combination of drill and hollow scraper. No. 43 is a natural flake out of which by a little hollowing a veritable hook has been made; whether this was used for piscatorial purposes by the old midden men it would be difficult to say, but certainly its form is most suggestive.

With regard to this characteristic minute work I might say that I have from the Wildernes Barrow, from two other barrows in the neighbourhood not yet explored, from the Wildernes Settlement and the Hastings Midden, several butts which belonged to implements probably 2 inches long in which this delicate fine edging is present. These highly specialised implements are supposed by Mr. Allen Brown to be contemporaneous with the dawn of metallurgy, a hypothesis in no way vitiated by my own discoveries. I found no bronze implements in the barrow, but very strange to say Mr. Duce found an iron coated brass bell, encrusted all over with oxide of iron to a thickness of $\frac{1}{8}$ of an inch, at a depth of over 4 feet, and although it is of the same shape as the oldest bell known, I cannot help thinking that it must have been forced down to that depth by the roots of the big fir trees planted on the barrow about a hundred years ago; it is however difficult to imagine how so heavy an encasement of iron could have been deposited from a sand which appears now to be non-ferruginous. The implements often have a ferruginous encasement, which it is difficult to chisel off; they are not, however, in any way stained by the per-oxide as paleoliths

usually are. On the settlement I found a bronze ring very crudely made flattened from above downwards, probably a finger ornament. I also found a similar size piece of bronze lying on one of the rock ledges near the midden at Hastings.

Taken as a whole it appears to me that we may learn a lesson from these finds ; if the researches had only been of the usual limited nature and one had only found a few of the articles, we might have assigned them to quite different periods, according to the nature of the things rescued ; had one found only those which are essentially similar to, or even identical with, the later French cave series, we might have set back their date considerably as M. Pierpont has suggested. Had we met with a few of the "highly specialised" forms only we might have assigned them to a people or tribe, with which we heretofore had been unacquainted ; while finding them in close proximity to, or associated with, bronze articles, we assign them to the latter period. It must be conceded that many of these forms are identical with the Indian specimens in several important characteristic points, so close indeed that it becomes impossible to separate the two groups. It cannot, however, for one moment be supposed that these very small implements were the only ones used by a people, and seeing that they pass both in outline and work into larger and more varied tools such as would be demanded in the needs of daily life, I see no reason why we should not regard all these as the product of one people, especially as they differ greatly, or, I may say, entirely from many other groups of neoliths now to be found over well-defined areas, some of which I hope to have the honour to describe to you on a future occasion. When we take these papers together we have a number of facts which may enable us to fix an approximate date, but as the researches are by no means concluded, too much theorizing had better not be indulged in. As to the midden it is interesting to note that the same highly specialised forms have been found in the Portuguese Middens, while the fauna may also assist us ; the existence of sheep or goat, dog and ox, bring down the age to close on the Neolithic period, while the round barrows and the practice of cremation are also characteristic of the dawn of the bronze age. Dr. Colley March has suggested that whatever may prove the age of the Hastings and Sevenoaks finds, his are still of great antiquity, which indeed must be the case if his geology be correct,¹ and that the southern examples may represent a lingering on of the same people to a later date. It appears that at no period were

¹ Unfortunately I am not familiar with the geology of the district and therefore can give no opinion, but should nevertheless expect a mistake somewhere.



ABORIGINAL ROCK PAINTINGS.

SCALE 4 FEET TO AN INCH.

Fig. 1.

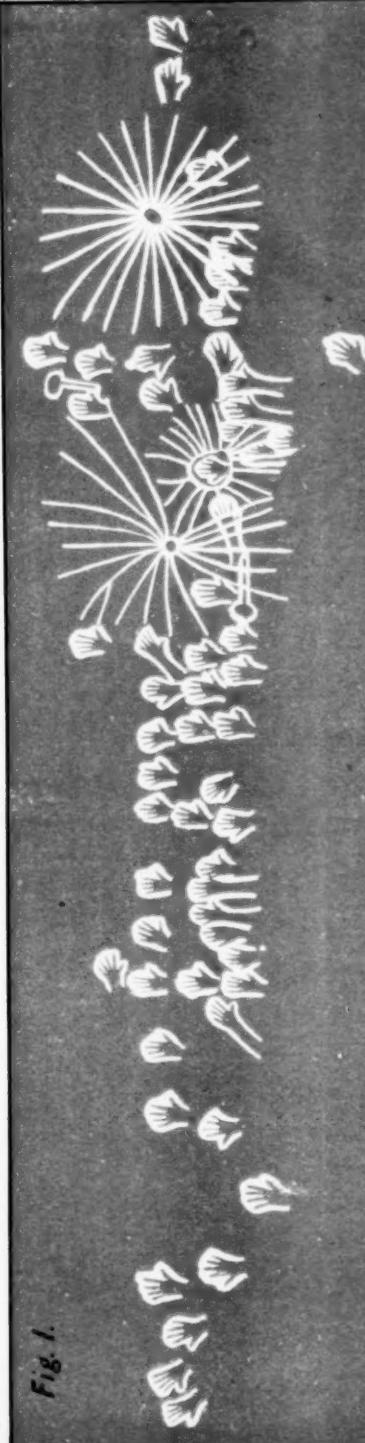


Fig. 2.



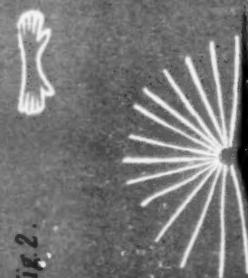
Fig. 3.

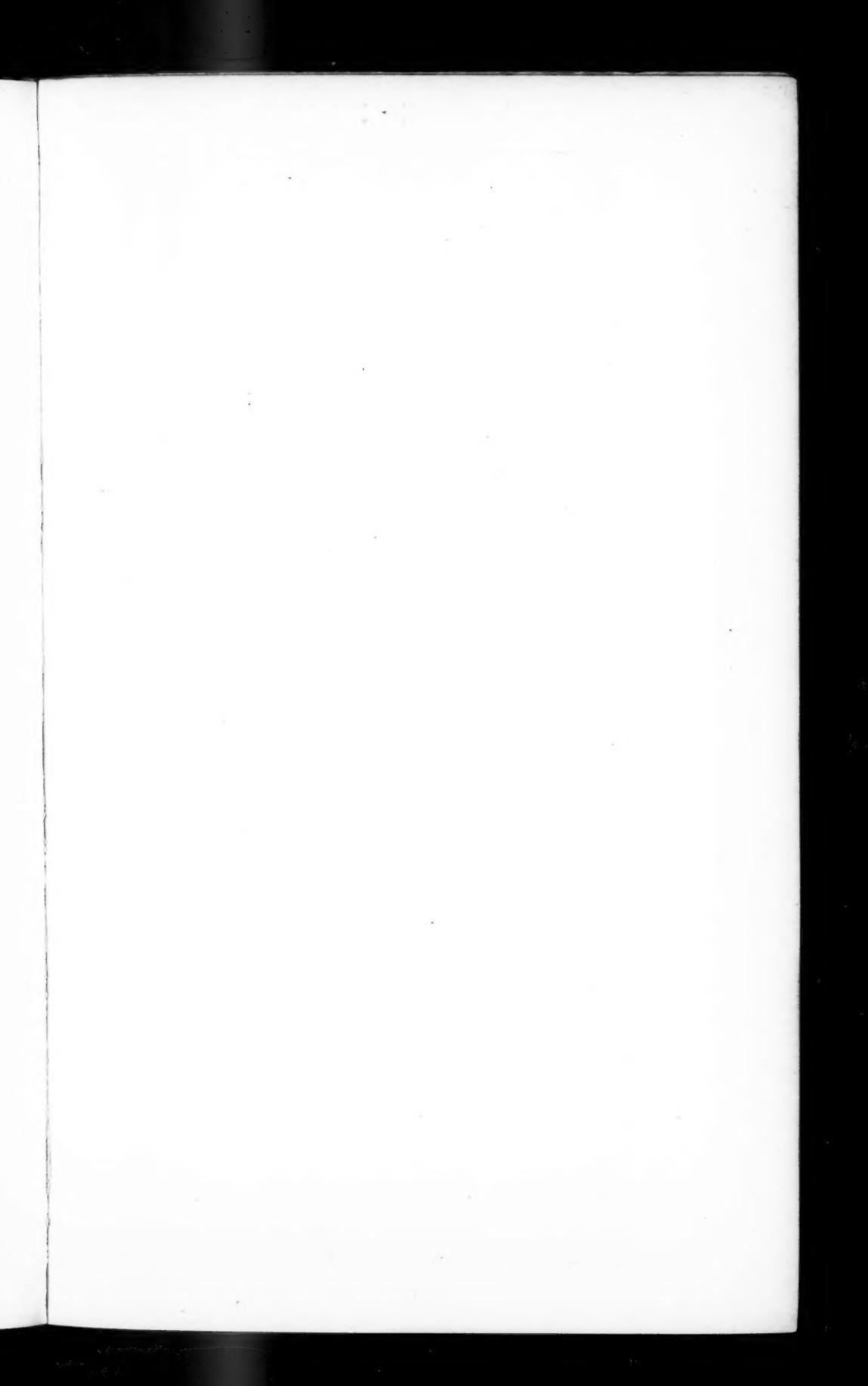


Fig. 4.



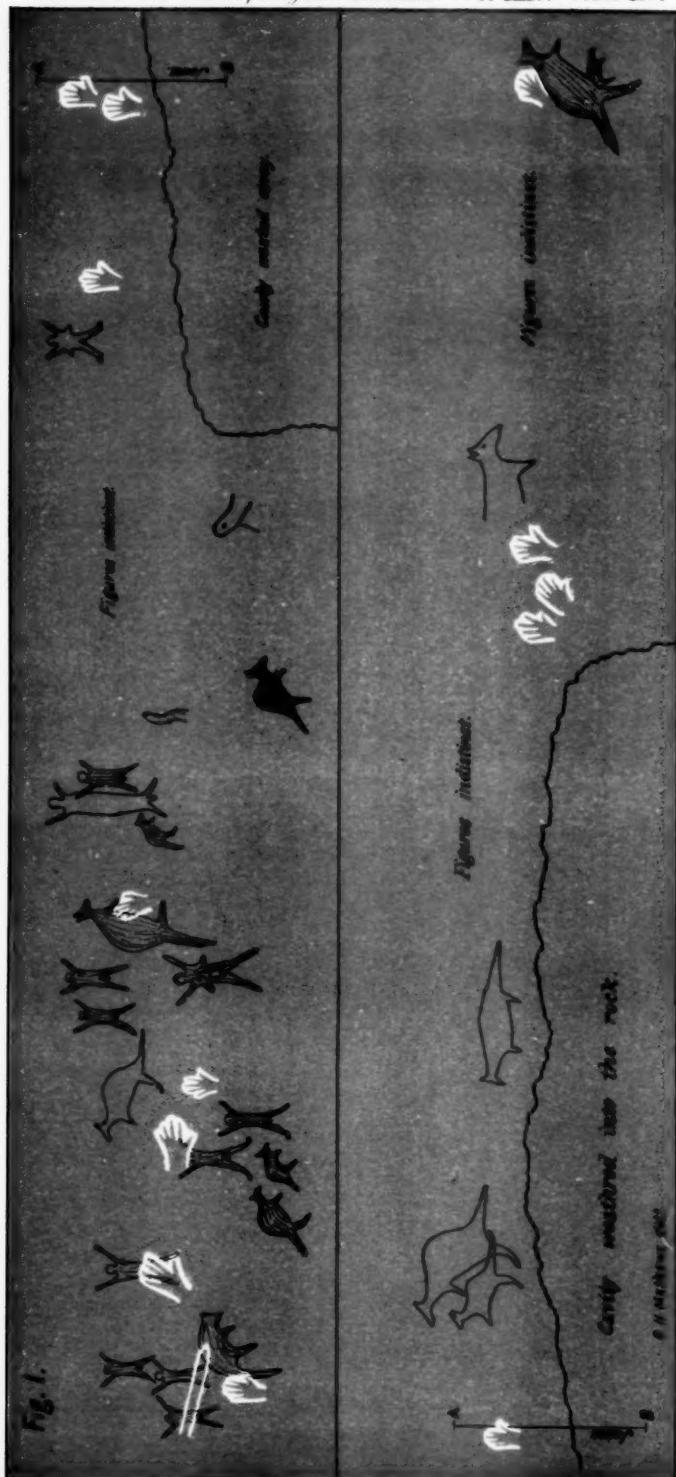
Fig. 5.

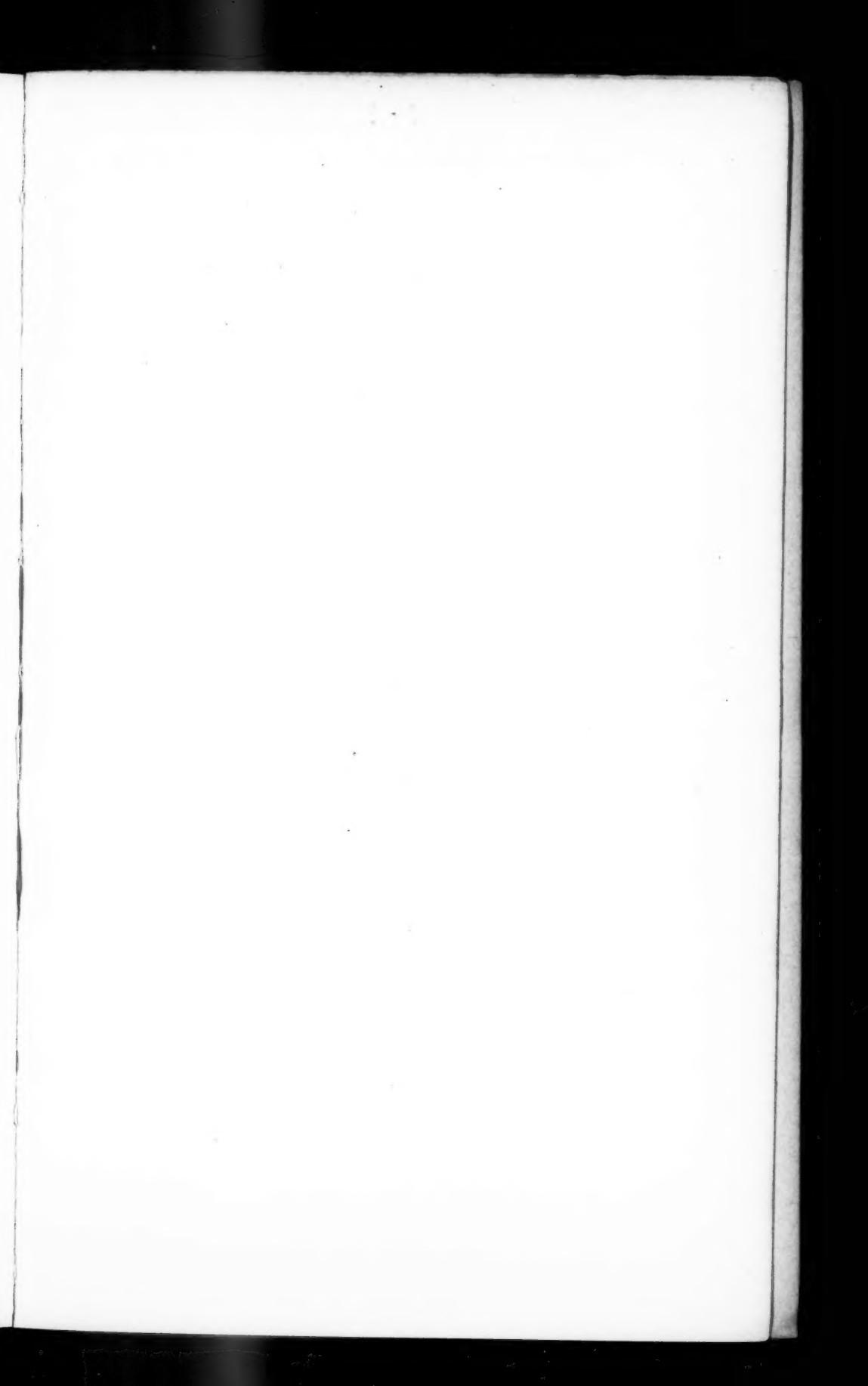


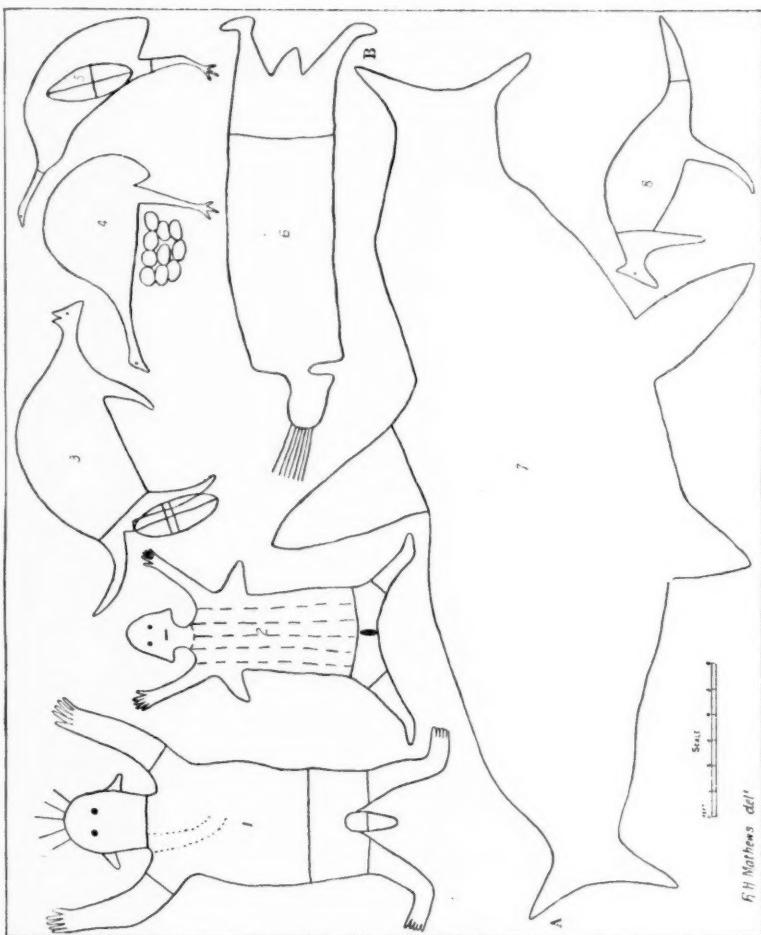


ABORIGINAL ROCK PAINTINGS.

SCALE 4 FEET TO AN INCH.







ABORIGINAL ROCK CARVINGS

they a warlike race, and they may after all only have been a nomadic people like the gipsies, who, indeed, might be able to claim a closer relation with the dark-skinned Indians than the fair Saxons. The survival of stone-cooking among the gipsies is also very suggestive. It is quite clear that the Hastings Midden and the Wildernes Barrow are of the same age, and if we admit the identity of the implements with those from further south, we must also admit that they were used by men who had immigrated to Britain from India across Africa, Spain and Belgium at the dawn of the bronze age. Taken as a whole we have every reason to consider that these implements were made by a race who lived more by hunting than war, a conclusion which no future research will well vitiate. When we take this remarkable group of implements from India, through Egypt, south of Europe, the Valley of the Meuse, and England, and see such a similarity or, indeed, identity of such highly characteristic or specialised forms, are we not justified in regarding them as the work of a people migrating northward? But whether these were the fathers of the so-called Indo-European branch of the human family is another question, for if they were we should be able to answer "the question, "Can the Ethiopian change his skin?" in the affirmative, a conclusion which I fear would not prove acceptable to many of our leading Continental and English anthropologists.

The ROCK PAINTINGS and CARVINGS of the AUSTRALIAN ABORIGINES. By R. H. MATHEWS, Licensed Surveyor.

[WITH PLATES XIV, XV, XVI.]

THE painted and carved rocks of Australia, the handiwork of the aboriginal inhabitants, are widely scattered over the continent, and it is matter of surprise that a subject of so much interest and value to anthropologists should have been so long neglected by scientific men, and others, competent to deal with them. It is greatly to be deplored that these drawings received so little attention from early settlers in the Australian colonies, who must have had numerous opportunities of observing them, and that no efforts were at that time made to record and preserve these specimens of pictorial art, showing the imitative, and inventive faculties of a primitive people.

Being desirous of assisting in the discovery and preservation of these works of native art, I have been endeavouring, for some time, to copy and describe in detail as many of them as possible, and to fix their position on the public maps, in order

that they may be readily found by students of anthropology wishing to visit them. Thorough and systematic collection of data can alone give a reliable groundwork for the study of this subject ; and the work must be undertaken at once, while there is still opportunity, or it will prove either incomplete, or too late altogether.

In several of the carvings found by me upon rocks, only parts of the figures could with difficulty be traced out ; in others, the whole outline was faintly distinguishable ; whilst others were clear and well defined. The same remarks will apply to the paintings. In the numerous caves visited by me, some contained paintings which were quite distinct ; whilst in others the figures were in various stages of decay, some being barely discernible owing to the wasting of the rock under atmospheric influences ; and in some instances I was told by old residents that in caves which they once knew to contain paintings nothing is now visible. It is evident that these native drawings will become fainter and fewer as time rolls on, hence it is very desirable that those who have opportunities, and are willing to give us the results of their investigations, should be encouraged by all learned societies to copy these records of a people who are rapidly disappearing before the white race.

In the "Journal of the Royal Society of N.S. Wales," vol. xxvii, pp. 353-8, I described some "Rock Paintings by the Aborigines on Bulgar Creek, N.S. Wales," and in vol. xxix of that journal, now in the press, I dealt with the "Aboriginal Rock Carvings and Paintings in New South Wales," for which I was awarded the Society's Medal.¹ I also contributed a paper on the same subject to the Royal Society of Victoria, which appears in their "Proceedings," vol. vii (N.S.) pp. 143-156. Another paper, on "The Aboriginal Rock Pictures of Australia," was contributed by me to the Royal Geographical Society of Australasia, Queensland Branch, and is published in their "Proceedings," vol. x, pp. 46-70.

Since writing the papers referred to, I have continued my investigations, and have succeeded in finding several other groups of aboriginal drawings which I shall describe and illustrate in this paper. I hope it is only necessary to point out the value of these specimens of native art for scientific purposes, to awaken an interest in them among people who would otherwise pass them by without notice.

The rock pictures of the Australian aborigines must be classed under two distinct heads, *paintings* and *carvings*. In the former, the pictures are painted on the walls or roofs of rock-shelters in various colours ; in the latter, the drawings are

¹ "Journ. Roy. Soc. N.S. Wales," xxviii, pp. 329-330.

in the nature of outline engravings or carvings cut or ground into the surface of the rock. I will therefore deal with the subject under the two divisions indicated :—

Paintings, how produced.—Aboriginal rock paintings are executed in three different ways, which I shall call, for the purpose of my description, (1) the stencil method ; (2) the impression method ; and (3) the outline method, or ordinary drawing.

(1) In stencilling figures of the human hand, or other objects, on the walls or roofs of caves or rock-shelters, a smooth surface was selected, and slightly wetted or damped with water. The palm of the hand was then placed firmly on the rock, with the fingers and thumb spread out, and the required colour, in a dry state, blown over it out of the mouth. On removing the hand the space it occupied remained clean, whilst the surface of the rock surrounding its margin was tinted with the colour used by the operator, contrasting strongly with the uncoloured figure of the hand, and giving it the appearance of standing out in relief. In some cases, part of the arm, as far as the elbow, or farther, was also shown. For examples of stencilled hands see Plate XIV Fig. 1. For the white colours they used pipe-clay, and for the red, red oxide of iron, commonly called red ochre. Both Mr. E. Giles and Mr. Winnecke, in their accounts of their explorations in Central Australia in 1873 and 1879 respectively state that they saw hands stencilled upon rocks with powdered charcoal, which was applied in the same way as I have described. I have seen hands and other objects stencilled in white, red or yellow, but black colour does not appear to have been used for stencilling among the natives of the districts visited by me. Previously damping the rock causes the dry powder of whatever colour to firmly adhere to the surface, where it appears to have the durability of an ordinary pigment. This method of drawing was also adopted in many instances in representing implements of the chase, such as boomerangs, tomahawks, waddies, &c. In some of the stencilled paintings which have come under my notice, the colouring matter around the margin of the object had the appearance of having been applied to the rock in a wet or pasty state. I have reason to think that in many instances the colour was applied with some kind of mop or brush, or was blown in a moist state out of the mouth of the operator.

Although it is probable that in many stencilled pictures of hands, the hand was held in position on the rock, and the colour applied by the same operator, an inspection of Plate XIV will show conclusively that two or more persons must have participated in drawing some of the objects. For instance, the stick shown in Fig. 4 must have been held on the rock by one person, whilst another applied the colour. Boomerangs,

tomahawks, and sticks, some of the latter being about 4 feet long, would require at least two persons to join in the work.

(2) In the *impression* method, the colour to be used was mixed with water, or with bird or fish oil, in a native vessel of some kind, into which the palm of the hand was lightly dipped, and then pressed firmly against the surface of the rock, and on the removal of the hand, the coloured imprint of it was left clearly defined. I have never seen or heard of any figures except the hand having been executed in this method, and the only colours used in the caves which have come under my observation are red and white. R. B. Smyth, in his "Aborigines of Victoria," i, p. 291, states that he was informed by Mr. Brown that the natives of Western Australia made these impressions by blackening their hands, and then pressing them against the rock. The black colour would no doubt be obtained by mixing powdered charcoal or soot with oil or water. E. M. Curr, in his work "The Australian Race," vol. ii, p. 301, says, "To mark a clean surface with a dirty, greasy, or painted hand is a common practice of our blacks, and I have seen them do it in several places long distances apart." And again in vol. iii, p. 679, he says, "I have often myself seen the blacks imprint their hands, stained with red ochre, on suitable surfaces, and cannot accept such marks as a proof of antiquity." In the districts visited by me in collecting information on the subject of this paper, I have found impressed hands in comparatively few caves, the stencil method being that generally adopted; and in both these methods, it was the palm, and never the back of the hand, which was used. Correspondents have told me that impressed hands have been seen by them in the Kimberley district of West Australia, and also in the central parts of South Australia, but were not common. For examples in the impression method see the thirteen hands represented in Plate XIV, Fig. 4.

(3) Native pictures of men, animals, and other objects to which neither of the preceding methods would be applicable, were drawn in *outline* in the required colours. In some cases the objects depicted were merely outlined, in other instances they were shown in solid colour all over, whilst in others the space within the margin of the outlines was shaded by strokes of the same colour, or a different one. In these cases the colours were mixed with bird or fish oil, or the fat of some other animal; pipe-clay and red ochre being used for white and red respectively, and when a black colour was required, it was made from ground charcoal or soot, similarly mixed with grease. Mixing the colours with an oily or fatty substance caused them to penetrate the surface of the rock, and become very durable.

Judging by the appearance of the lines in several of the figures drawn in this method, I think it not unlikely that in some cases before commencing the drawing, the surface of the rock was damped with water, or slightly moistened with grease, and that then a piece of the required colour, as a lump of red ochre, or pipe-clay, or charcoal, was held in the hand of the operator, and the necessary lines drawn with it upon the rock.

Besides the colours mentioned, vegetable colours were also known to the aborigines. E. Stephens says, "The natives painted red bands on their shields by means of the juice of a small tuber which grew in abundance in the bush." "Journ. Roy. Soc. N.S.W.", xxiii, p. 487.

I have visited a very large number of caves containing native paintings, and only in a few of them have I found yellow colour employed, and then only for a few small figures—yellow clays not being plentiful.

Carvings, how produced.—Three methods appear to have been employed by the aborigines in producing rock-carvings. (1) That most generally adopted was to cut the outline of the required figure on the surface of the rock with some sharp pointed instrument. (2) In other instances the whole surface of the rock within the outline of the figure was cut away to the same depth as the exterior groove, as in the cases mentioned by Capt. Wickham at Depuch Island, quoted by me in this paper. (3) Another method was to trace on the rock the object to be drawn, and then to grind it out by repeated rubbing with a piece of hard stone or pebble along the outline which had been traced.

(1) In visiting groups of native carvings in different localities around Sydney and adjacent districts, I came upon some figures which had been partially carried out, and then abandoned, which disclosed the manner in which the work had been done. A number of holes were first made close together along the outline of the figure to be drawn, and these were afterwards connected by cutting out the intervening spaces, thus making a continuous groove of the required depth and width. In some of the best executed figures I found these grooves about $\frac{1}{2}$ -inch deep, and about $1\frac{1}{4}$ inch wide. In many of the inferior carvings the depth and width are much less. It is probable that the object was first outlined by drawing a piece of coloured stone or hard pebble along the outline to be cut out. Judging by the indentations made in the rock in cutting out the lines of these figures, I conclude that the natives had a hard stone or pebble chipped or ground to a point and used as a chisel. As soon as the outline of the figure was chiselled out to the requisite depth, I think a stone tomahawk as well as the

chisel was used in completing the work. I am led to this opinion, because the sides of the groove are cut more evenly than could have been done with such an instrument as the holes were punctured with; and there is no doubt the work could thus be done with greater expedition. In support of these conclusions I may state that close to Fig. 1, Plate XVI, I found a sandstone rock which had been used by the aborigines for grinding their stone tomahawks. I saw similar grinding places¹ on the rocks close to other drawings. The carvings of men and other objects are generally found on horizontal surfaces, but are not infrequently met with on the walls of rock occupying various slopes between the horizontal and the perpendicular position.

(2) In some of the Depuch Island carvings, described by Capt. Wickham in the "Journal of the Royal Geographical Society," xii, pp. 79–83, the whole surface of the rock within the figure was cut away, whilst others were only in outline. The depth of the cutting is not given in either instance, but it probably did not exceed about $\frac{1}{2}$ -inch, the object being merely to expose the unweathered surface of the rock. Capt. Wickham, who examined the carvings carefully and made drawings and descriptions of 92 of them in different places, appears to have found sufficient evidence to enable him to arrive at the conclusion that they were cut out "with sharp pointed pieces of the same stone." This is a point of great interest and value to the anthropologist, because it shows that the same, or at any rate an analogous, method of producing carvings was adopted by the natives of the western coast of West Australia, as that in vogue among the natives of the coast of New South Wales.

(3) In the Murchison district of Western Australia, Mr. E. Favenc informs me that he found outlines of the human foot, and other marks, scratched upon the surface of granite rocks. These outlines had apparently been worn into the surface of the stone by repeated rubbing with a hard pebble held in the hand of the operator. The drawings were not deep, but would probably last a long time, owing to the hardness and durability of the granite rocks on which they appeared.

Geographical Distribution.—These native drawings are so numerous and widespread, that it would be beyond the scope of a short paper like the present to make a compilation from the few scattered notes found in the works of various writers who have referred to them in different parts of Australia, but I think

¹ For full descriptions and drawings of similar native grinding places, see my paper on "Some Stone Implements used by the Aborigines of N.S. Wales," published in the "Journal of the Royal Society of N.S.W.," vol. xxviii, pp. 301–305, Plate XLIII, Fig. 3.

it is desirable to enumerate a few of the localities in each of the colonies in which they have been observed.

Rock paintings have been seen in West Australia on the Glenelg, Avon, and Upper Prince Regent's rivers, as well as in other localities. They are found throughout South Australia from the southern portion of it along the overland telegraph line to Port Darwin, and the Gulf of Carpentaria; they are also referred to by the explorers Gregory, Giles, Warburton, and others. These paintings are widely distributed over New South Wales, having been observed on the following rivers:—Shoalhaven, Woronora, Hawkesbury, Hunter, Cudgegong, Merriwa, Talbragar, Clarence and several others. In Queensland they are scattered from the most northern to the southern limits of the colony, having been found at Cape York, at Prince Charlotte's Bay, and on the following rivers amongst others:—the Leichhardt, Flinders, Mitchell, Cape, Herbert, and Dawson, and at various other places throughout the colony. In Victoria, paintings are found on the western side of the Victoria Range, County of Dundas, and on the north-eastern side of the Grampians, County of Borung.

Rock carvings are neither so numerous, nor have such a wide geographical range as the paintings, although they have been observed in all the colonies above named, with the exception of Victoria. I am instituting investigations in likely districts of Victoria, which will, it is hoped, result in the discovery of native carvings in that colony. In South Australia, rude outlines, representing footmarks of men, kangaroos and emus, and some simple devices, have been observed at a few places long distances apart. Some unintelligible scratchings have been seen on Pigeon Creek in Queensland; and in the same colony, a correspondent informs me that there are a number of carvings on sandstone rocks, near the head of the Batavia river, York Peninsula. At Depuch Island, on the coast of West Australia, Capt. Wickham states¹ that he found "vast numbers" of carvings representing men, animals and other objects cut into the hard rock. In the Sydney district, New South Wales, carvings are found in many different localities, some being very rough, whilst others are creditably drawn, considering the rude tools at the disposal of the untutored artists.

The rock paintings of Australia are almost everywhere of a somewhat similar character, with but little variation either in

¹ "Journ. Roy. Geog. Soc.," xii, pp. 79-83. These carvings have hitherto been erroneously referred to as "paintings." In Smyth's "Aborigines of Victoria," i, p. 292, he says, "On Depuch Island, Stokes discovered a large number of paintings." Rev. J. Matew, "Journ. Anthropol. Inst." xxiii, p. 42, says, "The paintings on Depuch Island are numerous."

the subjects treated or in the style of workmanship. The stencilled and impressed hands, the outlines of men and animals rudely drawn in various colours, appear to be universally distributed over the continent. On the Glenelg river, West Australia, Capt. Grey found some paintings¹ in 1838, a few of which, according to the plates given in his book, were highly coloured, and done in a superior style to native drawings found elsewhere. The majority of them were, however, "carelessly and badly executed." Mr. Joseph Bradshaw describes² some well-executed native paintings drawn in several colours, seen by him in 1891 on the Prince Regent river, about thirty-seven miles north-easterly from the place mentioned by Capt. Grey. It would be of immense service to the cause of anthropology if the Government of West Australia would endeavour to obtain authentic examples and full reports on the character of the drawings in the district mentioned. It would also be highly gratifying if this work were undertaken by private enterprise. The natives are still numerous in that part of the country, and would no doubt be able to render valuable assistance in collecting information in reference to these drawings.

Significance.—Although these rock drawings have been observed from the time of the earliest explorers, few men have been found competent to avail themselves of their opportunities to copy and describe them in detail, therefore very little work has yet been done in this part of the wide field of anthropological science, so that there is still a very large area of ground to be broken. Our present knowledge of these productions of native art is in a comparatively rudimental condition, and therefore it will be better not to attempt to suggest meanings to any of the groups of native drawings until a very much larger amount of information has been brought together than that contained in the scattered notes now at our disposal. This can only be done by collecting data from all parts of Australia. No individual Society could bear the expense of printing all the plates and descriptions necessary for this purpose, but all Societies which have for their object the diffusion of this kind of knowledge could assist by publishing descriptions and drawings which had not previously appeared in the Journals of other institutions.

The American Indians, in common with the prehistoric peoples of Europe, recorded important events by means of pictographs, some of which have been deciphered. When we know that drawings such as these by uncivilised nations of

¹ "Two Expeds. N.W. and W. Australia," i, pp. 201–206, and Plates.

² "Trans. Roy. Geog. Soc. Aust., Vic. Beh." ix, pp. 90–103, and one Plate. See also "Journ. Anthropol. Inst.," xxiii, pp. 42–52, Plates IV, V, VI.

all times, in various parts of the world, have ultimately been found to be full of meaning, it is not unreasonable for us to expect that the strange figures painted and carved upon rocks all over Australia will some day be interpreted. Perhaps some of these pictures are ideographic expressions of events in the history of the tribe; certain groupings of figures may pourtray some well-known legend; many of the animals probably represent totems; and it is likely that a number of them were executed for pastime and amusement.

Probable Age.—In the early times of colonisation in Australia, very little attention was paid to the habits and customs of the aborigines, hence the information now available respecting these rock pictures is very limited. Another difficulty which besets the investigator is that the blacks died out rapidly under the influence of civilisation, and the few who survived lived chiefly among the white people, and abandoned most of their former customs.

I was fortunate enough, however, to find an old and respected resident of the Wollombi District of New South Wales, who had seen the stencilling done by the natives, and who was able to give me particulars as to the manner in which it was performed, and also the date.¹ This was in 1843 or 1844, and it is only reasonable to suppose that the practice was continued for several years after that time. Mr. Curr, the author of the valuable work on "The Australian Race," in his remarks previously quoted in this paper, bears testimony to having seen the blacks executing these hand pictures. This book was published in 1886, and I understand that Mr. Curr had been collecting information for it for about ten years previously.

As far as my researches have yet gone, I have not been able to find any one who has seen the rock carvings done, but there does not seem to be any reason for assigning to them a remote date of execution. In examining carvings upon the same rock I have observed a great difference in their apparent age, showing that the work had been executed at different times. Some are comparatively distinct, but many have almost entirely disappeared—a line here and there only pointing to their former existence.

The Hawkesbury Sandstone on which these pictures are drawn is not very durable, even under the most favourable circumstances. It will, however, last a considerable time if kept dry, but when located in damp situations it crumbles away rapidly. Some sandstones are much finer and harder than others, which would considerably add to the durability of both

¹ "Proc. Roy. Soc. Vic." vii (N.S.), p. 144.

paintings and carvings executed upon them, but none of them would remain for a very long period.

Drawings on the Ground, on Trees, &c.—Although the purpose of this paper is to deal with rock paintings and carvings, yet, as the widespread custom of drawing figures on the ground and on trees, as well as on the bodies and implements of the natives is so intimately connected with the subject I have in hand, I have deemed it desirable to make a short reference to that branch of aboriginal art.

In my paper on "The Bora, or Initiation Ceremonies of the Kamilaroi Tribe," published in the "Journal of the Anthropological Institute of Great Britain," vol. xxiv, pp. 411–427, Plate XXI, I have illustrated and described several kinds of aboriginal drawings on the ground. Some are drawn by first laying on the ground logs or bark forming the outline of the required figure, which was then covered over with loose earth. This way of building up the outline was only followed in very large figures; *loc. cit.*, p. 415, Plate XXI, Fig. 3. Other figures are composed entirely of the loose earth heaped up so as to resemble the horizontal image of the required object; *loc. cit.*, p. 416, Figs. 2 and 16. Another kind of drawing consists of figures of men, animals, and devices in various patterns, cut into the surface of the ground; a nick or groove from 2 to 3 inches wide, and about 2 inches deep, being cut into the turf along the outline of each. These grooves were cut with tomahawks, or flat pieces of wood on which an edge had been formed, *loc. cit.*, pp. 414–415, Figs. 5 to 8.

The specimens of native art found upon trees, representing men, animals, and other figures, are either chopped with the tomahawk, or are painted in red or white colours. In the former the object to be represented is outlined by a nick cut with a tomahawk into the bark or wood of the tree. For examples see the "Journal of the Anthropological Institute," vol. xxiv, p. 417, Plate XXI, Figs. 9 to 13, in which I have illustrated five trees marked by the aborigines. Mr. E. M. Curr, in his work "The Australian Race," ii, p. 301, states that he has "seen painted on a conspicuous tree, with red ochre or blood, the figure of a hand."

The ornamentation of the bodies of the natives is thus referred to by Mr. L. Schultze in describing the tjurunga festivals of the natives of the Finke river, South Australia: "The body is painted with fish-like figures. . . . Messengers are painted on the back with a sort of red disk formed of concentric rings, with four half-round disks, also consisting of concentric curves." "Trans. Roy. Soc. S. Aust." xxiv, pp. 231 and 243.

Another kind of painting which may be briefly referred to, is

the native practice of stripping a sheet of bark, and ornamenting its inner side with various kinds of drawings in red ochre or pipe-clay, after which the bark was either hung on a tree, or laid with one end on the ground, and the other resting against a tree.

Images cut out of bark may also be mentioned. In my paper on the "Aboriginal Bora held at Gundabloui in 1894," published in the "Journal of the Royal Society of New South Wales," vol. xxviii, p. 113, I described two male figures cut out of bark, and fixed up against trees. In the same place I also described the figure of an iguana 3 feet long, a figure of the sun 2 feet in diameter, and one of the full moon 18 inches in diameter, all of which were cut out of bark and fastened to trees.—*Loc. cit.*, Plate III, Figs. 14 and 15.

I have in my possession a number of specimens of several kinds of aboriginal weapons made of wood, some of which are elaborately carved. Mr. Collins in his "Account of the English Colony of N.S. Wales," published in 1798, vol. i, p. 593, in speaking of the natives about Sydney, says "Most of their instruments are ornamented with rude carved work, effected with a piece of broken shell."

Conclusion.—In reference to the descriptions of the three Plates attached to this paper, it is hoped that they will be found sufficiently clear and full. All the figures are drawn to scale from careful sketches and measurements taken by myself. They have been copied with the greatest care, so as to faithfully represent the defects, as well as the merits, of the originals. The direction which each rock-shelter faces has been taken with a pocket compass, as this information may be found valuable for comparison, or for other purposes. The position of each cave and carving on the Government maps is stated in every instance, so that any person wishing to visit them can do so with great facility.

In Plate XVI, representing carvings, I have selected gigantic figures in all cases, so as to make a strong contrast with other carvings described by me in the Journals of the Royal Societies of New South Wales and of Victoria. These very large figures are, moreover, much rarer, and consequently more valuable than the smaller ones, and are found only in a few places.

It may be as well to state that photography is not practically applicable in the field for the purpose of copying these drawings from the rocks on which they are found. The native paintings are often found on greatly curved surfaces; some are on the roofs of caves, which are sometimes flat, and sometimes dome-shaped; others are partly on the roof, and partly on the cave wall; others again are in awkward positions 10 or 15 feet

from the ground. The foreshortening and other displacements due to perspective, in the circumstances indicated, would obviously be very great. Many of the paintings are so indistinct that they would not appear at all in a photograph, and the inability to reproduce them in the colours in which they are drawn upon the rock would be a serious objection. The surface of the ground at the front of these shelters frequently slopes away at a very steep grade, making it very difficult, and in some cases impossible, to set up a camera in a suitable position. The want of proper light in many instances would also be an insuperable obstacle.

The difficulties attending the taking of photographs of carvings on horizontal rocks are in many respects similar to those encountered in copying the paintings. It would, moreover, be necessary to erect a high stage above the flat rock, and then set the camera face downwards in the direction of the object to be photographed. Many of these rock carvings are of gigantic size, some of them exceeding 40 feet in length, and the outlines of many of them are barely distinguishable to a practised observer.

The camera is practically valueless in copying paintings or carvings except perhaps a few well-defined and favourably situated small objects. The mode of drawing from measurements, showing the position of every object in its proper colour, and drawn to scale, is the only way in which this work can be done to be of the greatest value for scientific purposes.

I have prepared this short paper on a subject which is one in which I have taken a deep interest, and if the labour and expense it has cost me has the effect of inducing others to carry on the investigation, and elicit further information respecting these rock paintings and carvings of the Australian race, I shall consider myself sufficiently rewarded.

DESCRIPTION OF PLATES XIV, XV, AND XVI.

Plate XIV.—Paintings.

Fig. 1.—The cave containing these paintings is situated in an escarpment of the Hawkesbury Sandstone, near the south-east corner of portion No. 15, of 23 acres, in the parish of Tupa, county of Hunter. Its length is 29 feet, depth from the entrance to the back wall 18 feet 6 inches, and the height varying from 6 feet to 10 feet, owing to the irregularity of the roof. The floor consists of earth and ashes, and the cave faces S. 30° W.

On the back wall are delineated fifty-seven hands, forty-five of them representing the left hand, and twelve the right, all executed in what I have described as the "stencil method," and

in white colour. About half a dozen of these show part of the arm nearly to the elbow. Intermingled with the hands are also two aboriginal stone tomahawks, stencilled in white colour on the wall, in a similar manner.

There are three drawings in white colour, which may have been intended to represent the sun. The largest of these has nineteen rays of unequal lengths, and irregularly arranged, the greatest diameter across the rays being 5 feet 6 inches. Another has twenty-four rays, more uniform in length and arrangement than the last described, and having its greatest diameter 5 feet 4 inches. The remaining one of these drawings has eighteen rays irregular in length and arrangement, like the first mentioned, having a right hand stencilled on the disc at its centre. The total length of the back wall occupied by these paintings is 29 feet, and every object is shown in its correct relative position on the plate.

The smoke stains on the roof, and the ashes present in the soil on the floor, bear evidence to the cave having in former times been used as a camping place by the aborigines. It is distant about a quarter of a mile easterly from Putty Creek, in which there is permanent water.

Fig. 2.—The paintings here shown are found in a small cave in a sandstone rock within portion No. 44 of 40 acres, in the parish of Auburn, county of Northumberland. Its length is 12 feet, depth 7 feet, height 5 feet 6 inches, and it faces N. 15° E.

The principal painting in this cave is similar to the three drawings in Fig. 1 last described, and has fourteen rays fairly regular in arrangement, with the horizontal rays a little longer than the vertical ones. A small ledge projects just below the centre of the figure, which gives it the appearance of rising out of the rock, which might seem to favour the conjecture that these figures were intended to represent the sun, and that the present picture shows that luminary in the act of rising or setting.

There are altogether twenty-one hands visible in this cave, some being on the back wall, and others on the roof; but I have only shown two of the most remarkable, representing a right and a left, perhaps belonging to the same individual. These are stencilled in such a manner that the junction of the two separate drawings is not discernible, and the wrists appear to join each other. Three of the other hands have the arm as far as the elbow depicted. All the paintings in this cave are in white colour. Before any of the drawings were made, it is evident that the roof and wall were blackened either by smoke or by some colouring matter being applied to it, because the space

within and around the stencilled hands is quite black, causing the white colour to show very conspicuously. There is permanent water in the Macdonald River, less than a quarter of a mile to the east of the cave.

Fig. 3.—This curious figure of a man is drawn in red on the back wall of a cave 33 feet long, 10 feet deep, and averaging about 6 feet high at the entrance. It is situated about 80 yards from the right bank of Cutta Muttan Creek, in which the water is permanent, and about a mile westerly from portion No. 63 of 40 acres in the parish of Lockyer, county of Northumberland. In native drawings of men I have frequently found the penis very much elongated, in some instances as long, or longer, than the legs. The triangular projections on each side of the head may be intended to represent the hair stretched outwards from the head. Compare with the head of the woman shown in Fig. 2, Plate XVI.

Fig. 4.—In order to give a specimen of the “impression method” of drawing, I have here reproduced part of Fig. 2, Plate VIII, from the “Proceedings of the Royal Society of Victoria,” vol. vii (N.S.), illustrating a paper on “Aboriginal Rock Paintings and Carvings in N.S. Wales” which I contributed to that Society last year. I have been obliged to do this because impressed hands are not plentiful, and I have been unable to obtain original drawings for the present paper.

The plate shows thirteen impressed hands, one stencilled hand, and a waddy 4 feet long, also stencilled. A circular object, 3 feet by 2 feet 9 inches, with a line leading from it to the waddy, completes the paintings shown in this Fig., which are all done in red colour.

The cave in which these drawings appear is 28 feet long 18 feet high, 11 feet from front to back, and faces the north-east. It is on the end of a rocky point reaching into a sharp bend in Cox’s Creek, in which water is permanent, and is about 2 chains from the eastern boundary of portion No. 65, of 40 acres, in the parish of Coolcalwin, county of Phillip.

Fig. 5.—The cave containing this drawing of the upper part of a man is 26 feet long, 10 feet high, and 13 feet deep. It is situated within portion No. 40, of 40 acres, parish of Lockyer, county of Northumberland, and faces N. 20° E.

This drawing shows a man as far as the waist. The eyes and mouth are delineated, but not the nose. The whole of the figure is drawn in red colour, with the exception of the mouth, which is in white. A ledge of the rock projects outwards a few inches from the cave wall at the man’s waist, at which the drawing terminates, giving him the appearance of coming up out of the rock. In a few other instances I have found that the

natives have delineated iguanas, snakes, men, and other objects, coming up from, or disappearing behind, a ledge in this way. Cf. Fig. 2, Plate XIV.

For this Fig., and also for Fig. 3 of this Plate, I am indebted to Mr. W. J. Enright, B.A., of West Maitland, who takes a great interest in this subject. In both caves there are several other drawings besides those I have shown in this paper.

Plate XV.—Paintings (continued).

Fig. 6.—This large cave is 92 feet long, 27 feet deep from the front inwards, the height in front being about 15 feet, gradually decreasing inwards to the back wall, where it is from 6 feet to 9 feet, owing to the inequalities of the floor. It faces the north, and looks out on a rocky gully about 5 chains northerly from it, in which there is plenty of good permanent water. The roof is stained with smoke, and the shelter appears to have been used formerly as a camping place by the aborigines for many generations. The floor consists in places of soil, and in others of sandstone rock, both being covered with a thick layer of sand formed by the disintegration of the rock forming the walls and roof.

This cave or rock shelter is situated at the base of a precipitous escarpment of Hawkesbury Sandstone, on the southern side of a gully which runs easterly into Broosalum Creek, a tributary of Cowan Creek. It is about half a mile to the east of the road from Pymble to Cowan, and about three-quarters of a mile southerly from Jacomb Trigonometrical Station, parish of Gordon, county of Cumberland.

The drawings in this cave are both numerous and interesting, and are scattered over 57 lineal feet of the back wall. The Plate shows every object in its correct relative position, and in its proper size, exactly as it appears upon the rock. The great length of wall over which the drawings extend, made it necessary for me to divide the Plate into two sections, one commencing where the other leaves off—a line A B being drawn on each to show the connecting point.

To the left of the spectator on entering the cave are nine figures of men, one woman, and five kangaroos or wallabies, of different sizes, all outlined in black and shaded within the outlines, in the same colour. Intermingled with these are the figure of a man with an abnormally long body and short legs and a kangaroo, drawn in outline only. Farther to the right is a kangaroo drawn in solid black colour, and farther on is the figure of a woman in black outline. Looking at the left hand side of the lower section of the plate, we see two kangaroos running—apparently a mother and her young one—outlined in black; and farther on is an animal which is rather hard to

identify, but which may have been intended for an opossum or a native cat. Still farther to the right is part of the figure of a kangaroo, the remainder having disappeared owing to the natural decay of the rock surface. The last group in the cave is one of unusual interest, depicting a female kangaroo with a young one just in the act of jumping out of her pouch.

Returning again to the upper left hand corner of the Plate, there is delineated what appears to be part of a native weapon, done in white stencil, and executed subsequently to the black figures across which it is drawn. Scattered at intervals along the entire length of the cave are twelve hands stencilled in white, only one of which represents the right hand. There are also two unfinished figures near the black kangaroo. This completes all the drawings delineated on the Plate.

A large mass of the cave wall, about 24 feet long by 4 feet wide, has weathered away, forming a large cavity in the rock, no doubt carrying with it numerous paintings of different objects. Besides this there are several places, which I have marked on the Plate, where many figures have almost entirely disappeared, owing to the disintegration of the rock.

Plate XVI.—Carvings.

Fig. 1.—This gigantic figure of a man¹ is carved on a flat rock of Hawkesbury Sandstone on the top of a spur about half a mile north-westerly from Cooper Trigonometrical Station, parish of Frederick, county of Cumberland. The height from the left heel to the top of the head is 15 feet 2 inches, and the width across the body 4 feet 6 inches. There is a belt round the waist, a necklace, and bands round the arms and thighs. Four ray-like lines, the longest of which is 13 inches, rise from the top of the head, which may be intended for ornaments stuck in the hair. The eyes are shown, but the mouth and nose were either not drawn, or have disappeared by the weathering of the rock. The pendulous projections on each side of the head may represent the termination of the hair, or may be intended either for the ears or for ornaments attached to them. The mass of rock on which this figure is found is about half an acre in extent, and has a gentle dip towards the east. There are some dotted lines on the body, most of which, owing to the wasting of the rock, are too indistinct to copy. I have, however, been able to show two of the plainest of them.

Fig. 2.—This representation of a woman is 11 feet 3 inches from the top of the head to a point on a level with the feet, but if the legs were not so much spread out, the height would

¹ Among the carvings described by Capt. Wickham on Depuch Island were several human figures. "Journ. Roy. Geog. Soc.," xii, p. 82.

be about 11 feet 9 inches, or 12 feet. This is very much the largest figure of a woman yet observed by me among native carvings. The width of the body at the belt is 3 feet 7 inches, and from tip to tip of the mammae measures 5 feet 6 inches. There are bands around the thighs, and a necklace, similar to those in Fig. 1. The eyes and mouth are shown, and the projections on each side of the head are probably intended to represent the hair. Extending from the belt upwards towards the head are five broken or dotted lines reaching to the shoulders. This very interesting figure is carved on a flat rock about two acres in extent, and sloping gently towards the south-east, in the parish of Spencer, county of Northumberland. This rock is on an old bridle track from Mangrove Creek to the Hawkesbury River, and is on the top of the range dividing the waters of the streams mentioned.

Fig. 3.—This large carving of a male kangaroo¹ is found on the same flat rock as Fig. 2, and measures 12 feet 4 inches from the tip of the nose to the end of the tail—the width of the body at the widest part being 3 feet 11 inches. Two ears and an eye are shown, and there is a band around the hinder part of the body. Partly covering the animal's hind leg is a shield² 3 feet 5 inches long, and 1 foot 3 inches across the middle, with one longitudinal and two transverse bars cut upon it. This may refer to some tribal legend about the shield, or the latter may have been drawn there merely on account of the suitability of the surface for the purpose.

Fig. 4.—This figure is carved on the same large flat rock as Fig. 1, and is intended to represent an emu sitting on its nest containing ten eggs.³ The native artist does not appear to have been able to overcome the difficulty of showing the leg bent under the bird in the usual sitting posture, and has therefore drawn it straight, which gives the bird the appearance of lying on its side, with its leg stretched out. From the point of the bill to the farthest part of the croup measures 8 feet 6 inches, and the average size of the eggs is nearly 8 inches long, by 6 inches through. In my paper on "Australian Rock Pictures" published in "The American Anthropologist" (Washington, 1895), vol. viii, pp. 268–278, Plate II, Fig. 1, I have illustrated a group of six emus, all close to each other,

¹ The figure of the kangaroo was also observed by Capt. Wickham among the carvings on Depuch Island, on the western coast of West Australia. *Loc. cit.*, p. 82.

² Captain Wickham mentions a shield among the carvings seen by him on Depuch Island. *Loc. cit.*, p. 82.

³ Capt. Wickham, in his description of one of the carvings on Depuch Island, says: "it is probably meant to represent the eggs of the emu as laid in the nest." *Loc. cit.*, p. 82.

carved on the same large rock. In Figs. 2 and 3, Plate I, of that paper I have also shown two emus painted on the walls of rock shelters, one of the emus being apparently sitting on the nest.

Fig. 5.—This is another carving of an emu¹ measuring 9 feet 6 inches from the point of the bill to the tail. It is situated on a southern continuation of the same large rock as that on which Figs. 1 and 4 appear. There is a band around the leg, another around the neck, and an eye is shown. The leg is slightly bent at the joint, and is not straight like the leg of Fig. 4. Within the outline of the emu is the representation of a shield 3 feet 6 inches long and 1 foot 3 inches wide, with a longitudinal and a transverse bar. My remarks in regard to the presence of a shield in Fig. 3 may be read in connection with this one.²

Fig. 6.—This grotesque carving, which appears to be an unfinished figure of a man, is found on the same large mass of rock as Figs. 2 and 3. From the top of the head to the left heel measures 16 feet, and the width across the body at the belt is 4 feet 2 inches. Only one side of the head is completed delineating the hair as in Fig. 2; and from the top of the head project seven lines, each about 2 feet in length, resembling those seen in Fig. 1. I very carefully examined the rock, under favourable conditions, and am of opinion that no other lines except those shown ever existed.

I know of another somewhat similar carving, about the same size, in another locality, which I intend shortly to visit, and take full particulars, after which I hope to be able to make some interesting remarks in regard to both drawings.

Fig. 7.—The large fish here represented is carved on a flat rock of Hawkesbury Sandstone, sloping slightly towards the east, and is about half a mile in a south-westerly direction from Jones Trigonometrical Station, parish of Manly Cove, county of Cumberland. It is rather difficult to determine which end of this fish is intended for the head, but I am inclined to think it is at the end B, and that it was possibly drawn to denote a very large shark, with its mouth open; or, perhaps this carving may delineate some marine monster of the artist's imagination. The total length of the fish from A to B is 33

¹ The emu is mentioned by Capt. Wickham as having been seen by him among the Depuch Island carvings. *Loc. cit.*, p. 83.

² Figs. 1, 4 and 5 of this Plate have been described in a paper on "The Aboriginal Rock Pictures of Australia" contributed by me to the Royal Geographical Society of Australasia, Queensland Branch, and published in their "Proceedings," vol. x, pp. 66–70, and are therein shown as Figs. 1, 13 and 3 respectively, of Plate III.

feet 10 inches, and the diagonal measurement from tip to tip of the two longest fins is 21 feet 9 inches.

Fig. 8.—This representation of a female kangaroo is carved on the same flat rock which contains Figs. 1, 4 and 5. There is a band around the shoulders, and also around the tail. One ear and an eye are delineated, and the measurement from the tip of the nose to the end of the tail is 10 feet 7 inches. The animal is represented in the act of jumping, and is very well proportioned.

JUNE 11th, 1895.

E. W. BRABROOK, Esq., F.S.A., *President, in the Chair.*

The Minutes of the last Meeting were read and signed.

The presents that had been received were announced and thanks voted to the respective donors.

Dr. HEGER of Vienna was introduced to the Meeting by the President.

A lecture on the "Ethnography of British New Guinea, illustrated with the optical lantern," was delivered by Prof. A. C. HADDON.

Prof. HADDON commenced by stating that the ethnography of our largest tropical insular protectorate is still largely unknown, although thanks to the labours of the wise and energetic administrator, Sir Wm. MacGregor, and of the intrepid missionary, the Rev. James Chalmers, much information has recently come to hand. The object of the lecturer was to bring visually before his audience some of the ethnographical data which are now available for study. The people fall into two distinct groups, the true Papuan of the Fly River and Papuan Gulf districts and of the mountain ranges. These are a uniformly dark, frizzly-haired people, with elongated skulls, most of whom scarify their skin. Sometimes numerous families live in immense houses, and there appears to be a good deal of club-life among the men. Very characteristic are the sacred or club-houses, often called temples, as is also the occurrence of sacred ceremonies at the initiation of lads into manhood; masks are worn at these functions and the bull-roarer is swung and shown to the youths. The stone club is used all over British New Guinea, but the bow and arrow is confined to the Fly River and Papuan Gulf districts. The

natives of most of the coast of the south-east peninsula and of the archipelagoes beyond appear to belong to an immigrant stock of which the former may have come from the New Hebrides, and the latter from the Solomon Islands. They are usually lighter in colour than the true Papuans, often with broad skulls ; they tattoo their bodies and live in smaller houses. Initiation ceremonies with the concomitant employment of masks and the bull-roarer are absent. The bow and arrow are replaced by the spear, and shields are of universal occurrence. These natives have only recently learnt the use of tobacco, but they are inveterate betel chewers ; the use of Kava is unknown. Unlike the Papuans these people make pottery. The western Papuans are a totemistic people, and animal forms are frequently represented in their decorative art. The coast Melanesian immigrants have a poor decorative art, devoid of animal or human motives, whereas the island Melanesian settlers have a luxuriant art with rich scroll designs derived from the frigate bird, which is the sacred bird of the West Pacific.

Messrs. S. H. RAY and J. EDGE PARTINGTON took part in the discussion.

JULY 1st, 1895.

E. W. BRABROOK, Esq., F.S.A., *President, in the Chair.*

The Minutes of the last Meeting were read and signed.

The presents that had been received were announced and thanks voted to the respective donors.

The President announced the death of Prof. T. H. HUXLEY, and called attention to the great loss the Institute had thus sustained.

A lecture, illustrated with the optical lantern, on "Visits to the Hadramaut and Dhofar, the Frankincense and Myrrh countries of South Arabia, with a description of the Bedouins of both districts and their different characteristics," was delivered by Mr. J. T. BENT.

Miss BUCKLAND and Drs. GARSON and LEITNER took part in the discussion.

ANTHROPOLOGICAL MISCELLANEA AND NEW BOOKS.

The "Central Provinces of India Census."

THE report of the Census returns of 1891, for the Central Provinces of India, presents us with many interesting facts.

The provinces dealt with, occupying a central position almost surrounded by native states, comprise an area of nearly 116,000 square miles, divided into British and Feudatory States, with a population of 12,944,800, of which 10,784,294 are found in British territory and 2,160,511 in the Feudatory States; being in the ratio of 124 persons to the square mile in the British districts, to 73 in the feudatories.

The most prominent physical feature of the province is the range of the Satpuras, crossing it from east and west and dividing the Nerbada valley in the north from the plains of Nagpur and Chhatisgarh in the south. Beyond the Nerbada valley and separated from it by the range of the Vindhya, lie the districts of Saugor and Damoh. For census purposes the province is divided into seven parts, the Vindhyan division, the Nerbada valley, Nimar, the Satpura districts, the Nagpur plain, Chhatisgarh, and the Uriac country; whilst the administration divisions are four in number, subdivided into eighteen districts. The Jubbulpore division includes Saugor, Damoh, Jubbulpore, Mandla, and Seoni. The Nerbada division; Hoshangabad, Narsinghpur, Nimar, Betul, and Chhindwara. The Nagpur division; Nagpur, Wardha, Chanda, Bhandara and Bala-ghat. The Chhatisgarh division; Raipur, Bilaspur, and Sambalpur.

The hill districts rising to a height of 2,000 feet above sea level are usually healthy, but where there is jungle, malarial fever and cholera are rife. Wheat, rice and other food grains, cotton and linseed are extensively cultivated. The Nerbada valley has been described as "green from end to end with wheat," and the rice of Patna, one of the Feudatory States, is known everywhere.

The population, therefore, is largely agricultural, so that of the 10,784,294 under British rule, 7,173,480 are returned as living by "Pasture and Agriculture," the proportion of the sexes thus employed being nearly equal, and young children both male and female being sent out to tend cattle.

British rule over the whole of the Central Provinces only dates back to 1864, but as early as 1818, Saugor and Nerbada had become British territory, the remaining states having been gradually absorbed. Prior to this a series of wars between various native

chiefs desolated the country. Of the early inhabitants of this portion of India the Gonds would appear to have been the aborigines, but how long they had been in possession of the country prior to the Aryan invasion cannot be determined. One curious fact is however recorded, that "the conquerors were swallowed up by the conquered, the lower race assimilated to itself the superior element, for as time goes on certain Gond kingdoms replace all other dynasties and divide between them the whole of Gondwana."

In 1737 they were, however, conquered by the Marathas, who held the country until it passed under British rule.

The Gonds with their allied tribes still appear to be the most numerous of the many native races in the Central Provinces, being reckoned at 2,258,824 in the British districts, and 495,293 in the Feudatory States. It would occupy too much space to enumerate all the Gond tribes, but we must notice a few peculiar characteristics of some of them. The Bharias are described as among the wildest of hill tribes, of aboriginal religion but speaking only Hindi. The Darwe or Naik Gonds of Chanda, appear to have been employed as soldiers by the Gond kings, and still prefer military to agricultural work. The chief peculiarity of the Gaitis is the setting aside of a house in each village as the sleeping place of unmarried men the same provision being made in some villages for the unmarried women. This custom prevails also among the common Gonds of Kanker, and is of especial interest as being found also in New Guinea. Several of the tribes are bards and minstrels, and others are dancers, the women among the Bhimas and the men among the Ojhas; the latter putting on special attire and wearing anklets with belts.

The Raj Gonds are the highest class Gonds, and are according to Forsyth the result of the alliance between the Rajput adventurers and the Gonds in the days of Gond rule, showing an admixture of Hindu and aboriginal blood. These profess the Hindu religion, and wear the sacred thread, which is also the privilege of some of the Gonds of Bastar. The Marias are said to be the purest type of Gonds, and perhaps the root from which the other Gonds have sprung. They appear wilder and less civilised, but stronger and more agile than other Gonds; wear little clothing; shave the head, except a knot gathered up behind or on the crown. The young men wear red and white bead necklaces, sometimes worked into a band or collar of an inch or two in width, also brass bracelets, and sometimes a belt of cowries. A small iron knife without a sheath is always stuck in the belt behind. They sometimes wear rough sandals of buffalo hide, and a hatchet or bow and arrows hanging from the shoulder completes the costume. They are described as being timid, quiet, docile, and light-hearted, and bear a singular character for truthfulness and honesty.

The Gonds, however, with their subdivisions, form but one of the Forest and Hill Tribes of the Central Provinces. The wildest of all these are the Baigas, who are reported as still almost in a

state of nature, very black, but less negretto in feature than other wild races; upright, slim, and very wiry, with long, tangled, coal-black hair, almost destitute of clothing, but sometimes wearing a coarse cotton sheet cross-wise over the chest, armed with bow and arrows, and a keen little axe hitched over the shoulder. They build little bamboo wicker-work huts perched like an eagle's eyrie on a hill top or ledge of rock, and eke out the fruits of the earth by the pursuit of game. Truthful and honest almost to a fault, and courageous enough even to attack the tiger. They possess a patriarchal form of self-government, so that their disputes are settled by their elders without appeal.

Such is the description of the Baigas of the Maikal range as given by Forsyth, but the Baigas of Mandla include some highly-civilised tribes, such as the Binjhawars, from whom the priests of the tribe and of the Gonds are derived.

The Binjhawars are particular with regard to food and will not eat with outsiders, whilst the Bharotias and Narotias will eat almost anything except beef. Many of these tribes are distinguished by their mode of shaving the head or wearing the hair. The Balaghat Binjhawars are returned as of the Hindu religion, whilst the Mandla Binjhawars are animistic.

The Bhils, another wild race almost confined to the Nimar district, were formerly Mussulmans, but have returned to a semi-Hindu semi-elemental religion, and are "a miserable lot, idle and thriftless, and steeped in the deadly vice of opium eating."

The Halbas are a very numerous tribe, apparently of Gond descent, but Hindus by religion. "In Bastar they do not eat the flesh of cows or of swine, and wear the sacred thread as a caste." In Bhandara they eat swine's flesh, and do not put on the sacred thread.

The *Khonds* are the predominant race in the Uria country Patna and Kalahandi; they admit into their community members of other stocks with the exception of some of the debased castes, and to this practice Mr. Risley thinks may in some degree be due the fine physique of the race.

The *Korkus* and the *Kols* are also numerous in the Central Provinces, and of all these races there are numerous sub-divisions, rendering the ethnology of this part of India a most intricate problem, enhanced by the kaleidoscopic shifting of the various tribes in the past, by present migrations, and by that curious system of caste which seems to blend together and yet to separate the various tribes even more than race.

The castes in the Census Report are divided into classes, each class having many sub-divisions. Thus *Class A. Agricultural*—includes I—Military and dominant agricultural castes. II—Other agricultural castes; (a) cultivators; (b) cattle breeders and graziers; (c) field labourers. III—The forest and hill tribes.

Class B. Professional includes—Priests, devotees, temple servants, genealogists, writers, astrologers, musicians, dancers, &c.

Class C. Commercial.—Traders, carriers, &c.

Class D. Artisans and Village Menials.—Goldsmiths, barbers, blacksmiths, carpenters, masons, turners, brass and copper-smiths, tailors, grain parchers and confectioners, perfumers and betel leaf sellers, weavers, washermen, cotton-cleaners, shepherds and wool-weavers, oil pressers, potters, glass workers, gold washers, iron smelters, fishermen, boatmen, &c., distillers, butchers, leather-workers, village watchmen, scavengers.

Class E. Vagrants, Minor Artisans, Performers, &c.—Grindstone makers and stone quarriers, earth-workers and stone dressers, mat and cane workers, hunters and fowlers, miscellaneous tumblers and acrobats.

Class F. Races and Nationalities.—Asiatic races of non-Indian descent, non-Asiatic races, Eurasians and native Christians.

Of these we have already passed under review some of the hill and forest tribes included in Class A, as being of especial interest to anthropologists, and we must now endeavour to say a few words with regard to some of the more interesting of the other castes and their peculiarities. The Gujars (A) are a fine manly race of cultivators. The Mundal Gujars take off their turbans and expose their shaven heads when they eat, whilst the Lilorhas eat with the turban on. The Nimar Gujars are famed for their breed of fine trotting bullocks.

The Marathas and Rajputs are the great military tribes. The Powars, a subdivision of the Rajputs, rank high as agriculturists and are very skilful in irrigation works.

The Káchhis, noted for the excellence of their garden crops. Mr. Crooke inclines to the belief that the Káchhis have at least a totemistic connection with the Kachhwáha tribe of Rajputs, who take their name from *kachhwa* the tortoise, which was probably the tribal symbol.

The Kaonras trace their descent from the Kauravas, one of the two legendary families of the Lunar race. They wear the sacred thread, burn their dead and generally observe the Hindu religion, but differ from strict Hindus in that they eat flesh and allow their widows to re-marry.

The Mánas are said to have ruled the country prior to its occupation by the Gonds. They are of Gond type, and are hardy, industrious and truthful.

In Class B, the most important caste is that of the *Brahmins*, who are divided into Panch-Gaur or northern race and Panch Dravid or southern race; by far the larger proportion belonging to the former, but in each there are numerous sub-divisions. The strongest division of the Panch-Gaur Brahmins are the Kanaujas dwelling round Cawnpore and Benares. Another Brahmin tribe the Sanauriyas are the well known criminal class of Bundelkhand. These according to Mr. Crooke are strict Brahmins wearing the sacred thread which is renewed yearly at the Rakshábandan, are total abstainers from flesh and wine, never destroy life in any form, observe the same ceremonies connected with births marriages and deaths as other Brahmins:

worship the cow and the serpent, and when sick employ only Brahmin sorcerers to expel the evil spirit of disease.

Among devotees may be mentioned the Aghoris, who extort alms by eating human ordure, bones, or other filth. They are now rapidly disappearing. The Basdewas who are "a sect of 'merry beggars' known by wearing a cap of peacock's feathers. The stems are bound together and surmounted by a sham snake, the feathers shading the face. They beg only in the morning; each man has his beat which another Basdewa dare not infringe unless bareheaded."

A branch of Class D—Artizans, among the barbers are called Mahawats, who do ear cleaning and cupping, the latter by means of a cow-horn with a hole at the pointed end through which they exhaust the air. Among the weavers the Halbia are the makers of fine white cotton cloths with silk borders, for which the towns of Nagpur and Umner are famous. The Patwas string necklaces and make waistbands of silk and cotton thread.

A curious superstition is recorded of the gold and diamond washers. They avoid the spot where they have met with luck, believing that he who finds gold will be childless.

The method of smelting iron by the tribes following that profession is interesting. They have first to prepare the charcoal and collect the ore. These they place together in a clay furnace about 3 feet high, a regular current of air is kept playing on the furnace from a primitive pair of bellows worked by the feet. When the ore is smelted the iron comes rushing out in a lava-like stream from the crevice at the bottom of the furnace. It is then hammered and made into broad bars fit for sale.

The Dhimars and Kahárs who belong to the fishermen caste are also water carriers. "All the northern castes of Hindus, including Brahmins, take water from the Kahárs, but in the southern districts even the common Hindu castes refuse to drink from their hands."

Class E includes vagrants and what are known as criminal tribes; although the latter number among them some who are well-behaved, and it is remarked that the Bágris, who are largely criminal along the Bundelkhand border, are not so in Seoni, whilst the Minas of the Nerbada valley are settled cultivators, but the few who are found in other districts are probably of the northern stock which in Upper India is almost invariably criminal.

The various religions professed by the innumerable castes and tribes form a very interesting subject of inquiry. The Hindus form the great mass of the inhabitants of the Central Provinces numbering about four-fifths of the population, whilst the aboriginal religion classed in the Census returns as *animistic* is still professed by 78 per cent. of the Gonds and Khonds and in a less proportion by all the native tribes, the average in some rising to 66 per cent., whilst in others as the Halbas numbering 97,913 it is only 6·2, the great majority of these professing Hinduism, which however blends almost inseparably with the aboriginal religion;

and here it may be well to give some idea of aboriginal beliefs as quoted in the Census returns from the description of the late Captain Forsyth.

Treating of the Gonds, Captain Forsyth says they have passed through the earlier stages of belief and are entering on that of idolatry; but that the objects of worship of each new stage form additions to those formerly reverenced, instead of supplanting them. The foundation of their creed appears to be a vague pantheism, in which all nature is looked upon as pervaded by spiritual powers to be propitiated by simple offerings. Every prominent mountain-top is the residence of the Spirit of the Hill, who must be satisfied by an offering before a *dhya* can be cut on its slopes. A grove of typical trees is left standing as a refuge for the woodland spirits when clearing a jungle. When a field is sown, and again when it is reaped, the god of the rice-fields (*Khodo Pen*) has to be satisfied. The tiger god has a hut built for him in the wilderness, and the goddesses of small-pox and cholera receive offerings. The ghosts of the deceased have to be laid with certain ceremonies. These consist of conjuring the ghost into something tangible, as into the body of a fish or a fowl chosen by omen. The object, whatever it is, is then brought to the house of the deceased, and propitiated for a certain time, after which it is formally consigned to rest by burial. The spirits of persons killed by wild animals are especially malignant, and are laid with much ceremony. None of these powers of nature are represented by idols, nor have they any particular form of worship. They are merely localised by some vague symbol; the mountain god by a daub of vermillion on some prominent rock, the tree-god by a pile of stones thrown round the stem of a tree or so on. To these the simple savage pays his devotion by a prostration, or by the offering of a handful of rice or an onion, with more elaborate ceremonies at certain seasons.

In the next stage fetishes are added to the list of powers. The principal of these is an iron spear-head called *Phársá Pen*, and he is supported by the Bell-god the Chain-god, a god composed of some copper money hung up in a pot, shapeless stones, and many other objects. To this stage appears to belong the medicine man and dealer in witchcraft who still possesses considerable power among the tribes. These medicine men can hardly be called priests and are not an hereditary caste. Their business is to exorcise evil spirits, to interpret the wishes of the fetish, to compel rain, and so forth. Some of them seem to have acquired the power of throwing themselves into a sort of trance in which they are visited by the deity.

In a still more advanced stage the Gonds have resorted to hero worship, but it is curious that all their deified heroes are of purely Hindu derivation. The chief are Bhima, one of the five Pándú brethren, represented by his mythical club, either in stone or wood, Hardyál, a Rájput hero of much later date, and many others.

Lastly come the recognised divinities of the Hindu pantheon, the malevolent being preferred to the benevolent; Vishnu is scarcely recognised, except in his one terrible development of Nar singha, or the Man-Tiger; whilst Siva, the Destroyer, with his formidable consort Kali, and son Bhairava, are the favourite objects of reverence among the more advanced of the tribes. These are represented by rude idols, Siva himself in his usual phallic form; and a Brahmin in many cases officiates at their shrines. Here for the first time we find mythology—the science of priests at work. In their earlier stages the tribes had no priests, no hierarchy of gods, and consequently no mythology. Now legends are invented to connect the tribes and their earlier gods with the great web of Hindu fiction, and bring them within the dominion of caste and priesthood.

Captain Forsyth then treats of the religion of the Korkus, which he believes to be purer than that of the Gonds, since although the powers of nature are equally adored, such as the tiger-god, the bison-god, the hill-god, and the deities of small-pox and cholera, these are all secondary to the sun and the moon, which among this branch of the Kolarian stock, as among the Kols in the far east, are the chief objects of adoration. The sun and the figure of a horse (a Scythian emblem of the sun) are carved on wooden posts and receive sacrifices. They also sacrifice to the manes of their dead, but only for a certain period to lay them. They are not so addicted to sorcery and witchcraft as the Gonds and Baigas, and have only a few glorified heroes, but their semi-Hindu chiefs worship Siva and his companions. Forsyth speaks of the gradual fusion of the aborigines with the Hindus, but it would appear that in many cases the Hindus settled among aboriginal tribes have to a certain extent adopted the animistic beliefs of the hill tribes.

Other recognised native religions are those of the Sikhs and Jains, Aryas and Brahmos, Buddhists,¹ Parsis, Jews, Christians and Mussulmen; the latter numbering 319,479, whilst the Christians are given as 13,318, of whom 4,828 are Europeans, 2,202 Eurasians, and 6,278 natives; the latter have increased in nine districts, and decreased in the remaining nine.

Of the various sects into which all these religions are divided and sub-divided it is impossible to speak. The aboriginal and Hindu religions seem to be on the increase both in the British and Feudatory States, but much more so in the latter than in the former, the native Christians have also increased in numbers, but not in the same proportions, and the rates of all the religions vary in the several districts through migrations, which also cause a disproportion in the sexes in some of the states, although other causes not easily understood appear to be at work to induce the birth of a larger proportion of females among the aboriginal tribes, and of males among the Jains.

¹ The Buddhists only number 325 and these are mostly Burmese prisoners, and 11 are Chinese.

As in Europe, females appear to be longer-lived than males, but neither sex attain so great an average of years as among Western nations.

Child marriage prevails chiefly among the Hindu castes, but is slightly on the decrease except in Mandla. Of the statistics of various infirmities we must treat very briefly, although the subject is full of interest. One person in every 6,364 is returned as of unsound mind, the average being greater in the British than in the Feudatory States, but there is a satisfactory decrease since the last census; drink and noxious drugs being the chief predisposing causes. There is a great decrease in the numbers suffering from blindness. Deaf-mutes are also less numerous. The number of lepers is specially great in the Wardha district, but has decreased in other parts of the province, the average being one in 2,014 in British territory, and one in 1,716 in the Feudatory States, and in proportion of sex two men are lepers to one woman; the greater average being among the lower castes and aboriginal tribes, whilst blindness is more common among the higher castes.

The aboriginal tribes are largely illiterate, one reason for this is that Brahmins will not teach low-caste boys. They object to receive anything from their hands, the slates being pushed along the ground to and from the master, and if the latter should accidentally touch a boy, the master must bathe before he is pure. Hence the teacher is generally a Mahomedan, and after a time the low-caste boys disappear, and their place is taken by Mahomedans. Females, of course are almost illiterate except among the Parsis, of whom 56 per cent. of the women can read and write.

Many more interesting facts might be culled from these Census returns, but our space is exhausted.

A. W. BUCKLAND.

Die Philippinen. II. Negritos.

By Dr. A. B. MEYER.

This splendid monograph, the ninth volume of the publications illustrating the treasures of the Royal Ethnographic Museum of Dresden, is in many respects the most interesting of the whole series. It contains the discussions of topics of very great interest, and is based on the researches of the author himself and those of Semper, Wallis, Schadenberg, Baessler, and others. It is especially important and well timed, as so much that is inaccurate has been written of late years concerning the Negritos, in connection with the newly awakened interest in the pigmy races of the world.

The work consists of four parts: 1st, A description, with copious illustrative notes, of the ten large plates of photographs of the clothing, weapons, &c., of the Negritos of the Philippines. 2nd, Ethnographic notes on the race. 3rd, A vocabulary of Negrito speech, and a discussion of its affinities by Professor Kern of

Leyden; and 4th, a sketch of the distribution of the Negrito, both within and without the Philippine Islands.

In the first part there are some objects which are noteworthy. Among the articles of clothing figured there is a girdle whose provenance is unknown, made of locks of human hair interwoven with red cotton threads. The hair is that of a Malay, long and straight, not the frizzly hair of the Negrito. There are also several illustrations of the peculiar Negrito comb. The peculiar fashion of cutting short the hair on the back of the head, which is shown in one of the plates, allows of this comb being worn in a peculiar way, inserted horizontally from behind into the hair in front of the tonsured space, so that its flat part projects backwards like a shelf. It is interesting that combs of a similar pattern are in use among the Semangs of the Malayan Peninsula, another Negrito race.

In referring to a cigar mouthpiece from the Philippines Dr. Meyer notes that tobacco smoking is begun early by these people; he has seen suckling children smoking cigars. The same was noticed by Burbage in the Sooloo Archipelago.

The ornaments of the Negritos do not call for much notice; the peculiar leg rings of interwoven swine's bristles, the cloth rolls inserted into the ears, &c., are illustrated. Among the articles of their manufacture there is one extremely ingenious basket made of the node and internode of a large bamboo; the node forms the bottom of the basket, and the wall of the internode is split down nearly to the node into strips, with which are interwoven horizontally thin slips of bamboo, the whole thus making a fish-basket fusiform below, then narrowing upwards and widening finally to its mouth. As in slitting the bamboo the node above has been cut through along with the internode below it the thickened cut segments of the node make a kind of hooklike projection on the end of each of the vertical rods of the basket.

In connection with the illustrations of the arrows and bows we learn that the former, which are generally rather complex in their formation, are poisoned with the juice of a pilocarpus. The bows are for the most part simple.

The sheet of outline pictures shows very well the negro-like features, the thick lips, retreating foreheads, concave noses, and protecting teeth of these people. The shorn occiput gives to the head an extremely brachycephalous profile, and from these sketches one realises the accuracy of the observation of the Chinese writer Chao-ya-Kua, who six hundred years ago described them as "small in size with round and yellow eyes, with curly hair, and their teeth show through their lips."

Dr. Meyer is not able to satisfy himself as to whether the occipital tonsure has any special meaning, or whether the great flattening of the skull is intentional and artificial or produced accidentally by the cradle or other pressure in infancy, but he is inclined to believe that it is intentional, and that the depressed

forehead is associated with it. No application of pressure has been seen nor any such manual moulding as some writers have described among some of the Melanesians. The projecting jaw gives an ape-like appearance to the face, and the apparent microcephalism does not seem to interfere with the intelligence or liveliness of the Negritos, among whom occasionally are to be found some faces which scarcely differ from those of some Europeans.

Tattooing is apparently universal, the patterns being simple, but Dr. Meyer was not able to find out if there was any significance in the different styles of ornamentation, or if the tattooing was performed at any definite period.

The hair is fine and woolly, arranged in close spiral rolls, varying from a dark seal-brown to black. In structure it has a firm continuous cortex with little or no medulla; it turns grey in old age. In children it is soft and silky and tends to grow in long slender corkscrew curls. By the study of shaven heads Dr. Meyer determined that it was generally diffused on the scalp, not growing in islands with bare patches between, the grouping of the follicles differing little from that noticeable in European heads. There is always a certain grouping of hair follicles in all heads European or Negro, but this does not seem exaggerated among these people. They are all woolly haired, the supposed straight-haired Negritos mentioned by some authors being according to him non-existent.

Dr. Meyer found the Negritos to be a happy, lively people, to whom care seemed a stranger, their great anxiety being the procuring of their food, which is of all kinds eatable, fruits, roots, honey, even snakes. When they have provided for their wants they care for no further exertion, and love to lie in laziness and ease. Their songs consist of monotonous endless unison chants, apt to become very wearisome to the hearer.

The stature of twelve males ranged from 1401 mm. to 1505; seven ranged from 1401 to 1409, and five from 1500 to 1505. Semper gives as their range from 1405 to 1489, and Schadenberg from 1350 to 1450. There is a trifling difference between the statures of the sexes. Maclay measured one female of 1300 mm. Combining all observations the stature of the males has been found to range from 1401 to 1575, and that of the females from 1300 to 1485. The Andamanese have about the same range, the ascertained limits being 1362 to 1600 in males, 1302 to 1496 in the females. The Papuans exceed these, the males being from 1417 to 1651 (one exceptional individual having been 1755). The females range from 1404 to 1534.

The vocabularies gathered by all observers are here combined and Professor Kern as the result of his investigation regards it as both a grammar and vocabulary a pure Malayo-Polynesian speech nearly allied to the Tagalese and Biscayan. All the vocabularies hitherto gathered have been from places which have been under Malay influence, and it is possible that the more extended study

of other word-lists may show some more specific Negrito peculiarities. The pronunciation is in some respects peculiar, and the accounts given by some of the older Spanish authors certainly suggest that at one time they had a language of their own. At the same time there has not as yet been discovered that special element in their speech which the late M. Terrien de la Couperie supposed he had found.

The vocabulary, like that of so many island word-lists, shows a predominance of labial sounds as initials, little aspiration and the absence of the *f*. In the grammar the pronominal suffixes and the verbal infixes resemble those of some allied tongues.

The most interesting section of the work is the chapter on the distribution of the Negrito race, a subject upon which much has been very loosely written, and in consequence much error has become current. Dr. Meyer makes a critical inquiry into the grounds of many of the popular accounts of these people, and shows how baseless are many of the statements in reference to the occurrence of Negritos in other lands. In the Philippines there is an estimated population of 20,000 out of a general population of seven millions and a half. They have been found in Luzon, Alabat, Mindoro, Panay, Negros, Mindanao, Tablas, Cebu and Palawan. In some places as in Negros there are Mestizos with a strong admixture of Negrito blood.

Outside the Philippines the evidence of their existence in Borneo is very shadowy, but the presence of Negritos in Celebes, Timor, Moluccas, Java, Sumatra, Belitong, Engano, Formosa, Japan, Loochoo and China is not proven, and in most of these cases more than doubtful. The Semangs of Malacca and the Andamanese are their nearest congeners in structure. The Negrito nature of many of the hill tribes of India, Ghonds, Bhils, &c., requires careful investigation by some one acquainted with the real Negritos. The late Valentine Ball, who was familiar with the Andamanese, has told me that there has been a great deal of inaccurate writing on that subject. In our last conversation, a very short time before his death, he expressed his intention of putting together a number of his notes on the subject with a view of proving that much of the supposed Negrito admixture among the hill folk of India had been hastily assumed by observers who had very insufficient opportunities of becoming acquainted with these people, and he specially warned me concerning certain statements put forward in some modern works on pigmy races.

That the Papuans and Negritos are allied is the opinion of Dr. Meyer, in spite of the supposed prevalence of dolichocephaly among the former. They are, he believes, a variable race much influenced by their environments.

Much yet remains to be learned especially of the physical anthropology of the Negritos, and it is to be hoped that, while yet they remain as an existing people their anatomical structure may be more carefully studied than it has yet been. Researches in this line and the gathering of vocabularies from a wider area are

desirable supplements to Dr. Meyer's work, which as will be seen from this brief summary is one of the most remarkable works by this distinguished author.

A. M.

"The Buddha and his Religion." By J. Barthélemy Saint-Hilaire. (Routledge and Sons.) pp. 384. 8vo. 1895. This is a translation from the French by Laura Ensor, and forms one of Sir John Lubbock's "Hundred Books" series. The purpose of the work is to bring out in striking contrast the beneficial truths and the greatness of our spiritualistic beliefs, which a knowledge of Buddhism has enabled the author to better perform. The book is divided into three parts, viz.: Part 1. The origin of Buddhism. Part 2. Buddhism in India in the seventh century of the Christian era. Part 3. Buddhism at the present time in Ceylon.

"The Ruling Races of Prehistoric Times" in India, South-Western Asia and Southern Europe. By J. F. Hewitt. (A. Constable and Co.) Vol. ii. pp. 382. 8vo. 1895. Volume i of this work contained six essays, and told the story of the divine education of civilised man, and how our forefathers "fought their way out of the darkness of ignorance." The present volume continues these essays and gives us three more of them, the titles of which are (vii.) The Astronomy of the Veda, and its Historical Lessons. (viii.) History as told in the Mythology of the Northern Races, the Fathers of the Temple-builders, the Sons of the Seed of Life, the Eight-rayed Star. (ix.) History of the worship of Ia or Yah, the all-wise Fish-Sun God, as told in the Mythology of the American Indians, Scandinavians, Finns, Akadians, Arabian, Assyrian, and Syrian Semites, Iranians, Hindus, Chinese and Japanese. The book is furnished with a very full index.

"The Growth of the Brain": a study of the nervous system in relation to Education. By Henry Herbert Donaldson. (Walter Scott, Ltd.) pp. 374. 8vo. 1895. This forms a volume of the useful "Contemporary Science Series" edited by Mr. Havelock Ellis; in it the author has brought together much material bearing on the nervous system of animals and the growth changes which produce its power. Many points not often touched upon are emphasized, such as:—The growth of the nervous system compared with that of the body; the interpretation of brain-weight in terms of cell structure; the early limitation of the number of nerve cells; the dominance of nutritive conditions; the wide diffusion of nerve impulses; the incompleteness of repose; the reflex action of all responses; the native character of mental powers; and the comparative insignificance of formal education. The book is well illustrated.

"Egyptian Tales," translated from the Papyri. Second Series, xviiith to xixth Dynasty. Edited by W. M. Flinders

Petrie. (Methuen and Co.) pp. 146. 8vo. 1895. Four tales are included in this volume, viz.:—The taking of Joppa; the Doomed Prince; Anpu and Bata; and Setna and the Magic Book. Each one of them is explained and remarked upon by the Editor.

"Norseland Tales." By H. H. Boyesen. (T. Nelson and Sons.) pp. 247. 8vo. 1895. A collection of ten popular Norwegian tales.

"A Visit to Bashan and Argob." By Major Algernon Heber-Percy. With prefatory note by Canon Tristram. (Religious Tract Society.) pp. 175. 8vo. 1895. An interesting description of a journey made by the author from Damascus to Bosra and Salcah and back. The volume is profusely illustrated by excellent pictures, most of them apparently reproduced from photographs, of natives and scenery.

"Rambles in Japan," the land of the Rising Sun. By H. B. Tristram. (Religious Tract Society.) pp. 304. 8vo. 1895. This is an account of the author's visit to Japan, and for the most part is a transcript of his daily journal. The book is of great interest, and it not only describes several parts of the country seldom visited by foreigners, but many topics not generally dealt with are touched up. The author had special advantages of gaining an insight into the customs, manners, and language of the natives, in being accompanied by his daughter, who had been a resident in the country for some years.

"On the Structure of Greek Tribal Society." By Hugh E. Seebohm. (Macmillan and Co.) pp. 147. 8vo. 1895. An essay on the course of social development written with the object "of trying to put back in their true setting some of the conditions prevailing, sometimes incongruously with city life, among the Greeks in historical times, and by comparison with analogous survivals in known tribal communities, of whose condition we have fuller records, of establishing their real historical continuity from an earlier stage of habit and belief."

"Noémi, a Story of Rock-Dwellers." By S. Baring-Gould. (Methuen and Co.) pp. 368. 8vo. 1895.

"The Home Life of the Ancient Greeks," translated from the German of Prof. H. Blümner by Alice Zimmern. (Cassell and Co.) pp. 548. 8vo. 1893. This contains an account of the life and customs of the ancient Greeks, as deduced from their literature, art and inscriptions. It is illustrated with numerous interesting cuts and is provided with a good index.

"Essays and Notices, Philosophical and Psychological." By Thomas Whittaker. (T. Fisher Unwin.) pp. 370. 8vo. 1895. The contents of this volume, with the exception of the

first essay on the philosophy of history, are reprints with slight alterations of papers that have appeared before in various periodicals. The author has done well to collect them together and issue them in volume form.

"The Origin and Nature of Man." By S. B. G. McKinney. (Elliot Stock.) pp. 95. 8vo. 1895. This little book is divided into two chapters. In the first of these the author gives an analysis of the Origin and Nature of Man; in the second, man's origin is argued by employing the imagination to look upon him from the standpoint of his Creator.

"Was Israel ever in Egypt?" or, a Lost Tradition. By G. H. Bateson Wright. (Williams and Norgate.) pp. 382. 8vo. 1895. This volume contains Hebrew story and history; stories based on derivations; genealogies; Hebrew feasts and customs; elements of improbability in the Hexateuch narrative; enquiry into the origin of the names of the Patriarchs; Synthesis; Hebrew and Chinese history and religion: a parallel; and criticisms on the whole work. An appendix on the doctrine of immortality in the Old Testament is given.

"An Outline Grammar of the Deori Chutiya Language," spoken in Upper Assam, with an introduction, illustrative sentences, and short vocabulary. By W. B. Brown. (Assam Secretariat Printing Office.) pp. 84. 8vo. 1895. The tribe which speaks the Chutiya language numbers less than 4,000 individuals. Very little has been previously written about this language, and it probably in no distant future will become quite extinct. The present grammar is therefore of importance as being a record of the language of the Deori people.

"The History of Mankind." By F. Ratzel. Translated from the second German edition by A. J. Butler, with preface by E. B. Tylor. Part I. (Macmillan and Co.) pp. 48. 8vo. 1895. This work is to be issued in thirty monthly parts, and will contain information that has been gathered by many generations of travellers all over the world down to the present day. It will be profusely illustrated with cuts, which from the part before us, appear very accurate, and coloured plates of the natives and their costumes.

"Kafir Stories." By William Charles Scully. (T. Fisher Unwin.) pp. 201. 8vo. 1895. A collection of seven interesting Kafir stories.

"The American Antiquarian." Vol. xvii. Nos. 3, 4. (No. 3.) The story of the Creation among the American Aborigines, a proof of prehistoric contact, by S. D. Peet. A visit to the Scene of Romona. Stockades and earthworks in New Zealand, by E. S. Best. Discovery of a new tribe of Indians. The Choctaw Robin Goodfellow. by H. S. Halbert. Submerged

forests and peat-beds. Prints of the human hand in the ruins of the Cliff-dwellings. Egyptological notes, by W. C. Winslow. Palestine Exploration, by T. F. Wright. The Calendar system of the Chibchas. Description of the site of "Old Coosa," Alabama, by T. H. Lewis. The Symbols of the Samoans. (No. 4.) Prehistoric contact of Americans with Oceanic or Asiatic peoples, by Prof. C. Thomas. The soil which made the Earth; a legend from the north-west coast, by G. C. Teall. The Moqui Snake-dance, by R. H. Baxter. A little-known civilisation, by J. Deans. A map of Illinois in 1680, by H. W. Beckwith. Remarkable Arizona ruin. Rock-shelters in New Zealand, by C. A. Perkins. The study of maps, by S. D. Peet. Egyptological notes, by W. C. Winslow. Scenery on the Colorado, by J. W. Powell.

"**The Journal of Mental Science.**" Vol. xli. No. clxxiv. Daniel Hack Tuke, by W. W. Ireland. A review of the last twenty years at the Worcester County and City Lunatic Asylum, with some conclusions derived therefrom, by E. M. Cooke. Atrophy and Sclerosis of the Cerebellum, by C. H. Bond. Notes on a case of cerebral Hemiatrophy, by J. J. Cowan. A further contribution on the relationship between Chronic Renal Disease and general Paralysis of the Insane, by H. C. Bristowe. Sanity or Insanity. A brief account of the Legal and Medical views of Insanity, and some practical difficulties, by G. M. Robertson. Collective Investigation in Mental Diseases, by C. Mercier. On the Clinical and Pathological relations of general Paralysis of the Insane, by R. Farrar. Clinical Notes and Cases.

"**Proceedings of the Society of Biblical Archæology.**" Vol. xvii. Part 5. The Testament of Jacob (Gen. xl ix), by C. J. Ball. Note on length and breadth in Egyptian, by P. Le P. Renouf. The Book of the Dead, by P. Le P. Renouf. Two Monuments with a Votive Formula for a living Person, by A. Wiedemann. Assyriological Notes, by F. Hommel. Letter from W. L. Nash. Note to the paper on the Karian and Lydian Inscriptions, by A. H. Sayce. La Coudée Royale du Musée Egyptien du Louvre, by P. Pierret.

"**The Scottish Geographical Magazine.**" Vol. xi. Nos. 7-10. (No. 7.) Notes on Franklin's Arctic Expeditions, by W. S. Dalgleish. The Labrador Peninsula, by R. Bell. (No. 8.) The Scenery of Sutherland, by H. M. Cadell. The Nile Reservoirs, by H. D. Pearsall. The People of Tibet. List of objects shown at the Franklin Commemoration Meeting. (No. 9.) Notes on the Geography, Geology, Agriculture and Economics of Iceland, by H. J. Johnston-Lavis. The International Geographical Congress. (No. 10.) Address to the Geography Section of the British Association, by H. J. Mackinder. Africa as a field for Colonial Enterprise, by G. F. Scott-Elliott. The British Association, 1895. Joseph Thomson, by J. G. Bartholomew.

"L'Anthropologie." Tome vi. No. 4. Dain quaternaire de Bagnères de Bigorre (Hautes-Pyrénées), par Edouard Harlé. Note sur l'époque des métaux en Ukraine, par le Baron de Baye. Réflexions anthropologiques à propos des tumulus et silex taillés des Comalis et des Danakil, par M. le Dr. Jousseaume. L'Infantisme, le Féminisme et les Hermaphrodites antiques, par Henry Meige.

"Revue Mensuelle de l'École d'Anthropologie." Ann. v. Nos. vii-ix. (No. vii.) Le Passé et l'Avenir du Commerce, par Ch. Letourneau. Chronique Palethnologique, par G. de Mortillet. (No. viii.) Les Mottes (Cours de palethnologie), par G. de Mortillet. (No. ix.) Le milieu extérieur (Cours de géographie médicale), par Capitan. Discussion des concepts psychologiques, Sentiments et Connaissance. Etats affectifs (Cours d'Anthropologie physiologique), par L. Manouvrier. Découverte de Silex taillés dans les tufs de la Celle-sous-Moret, par E. Collin, Reynier et A. de Mortillet.